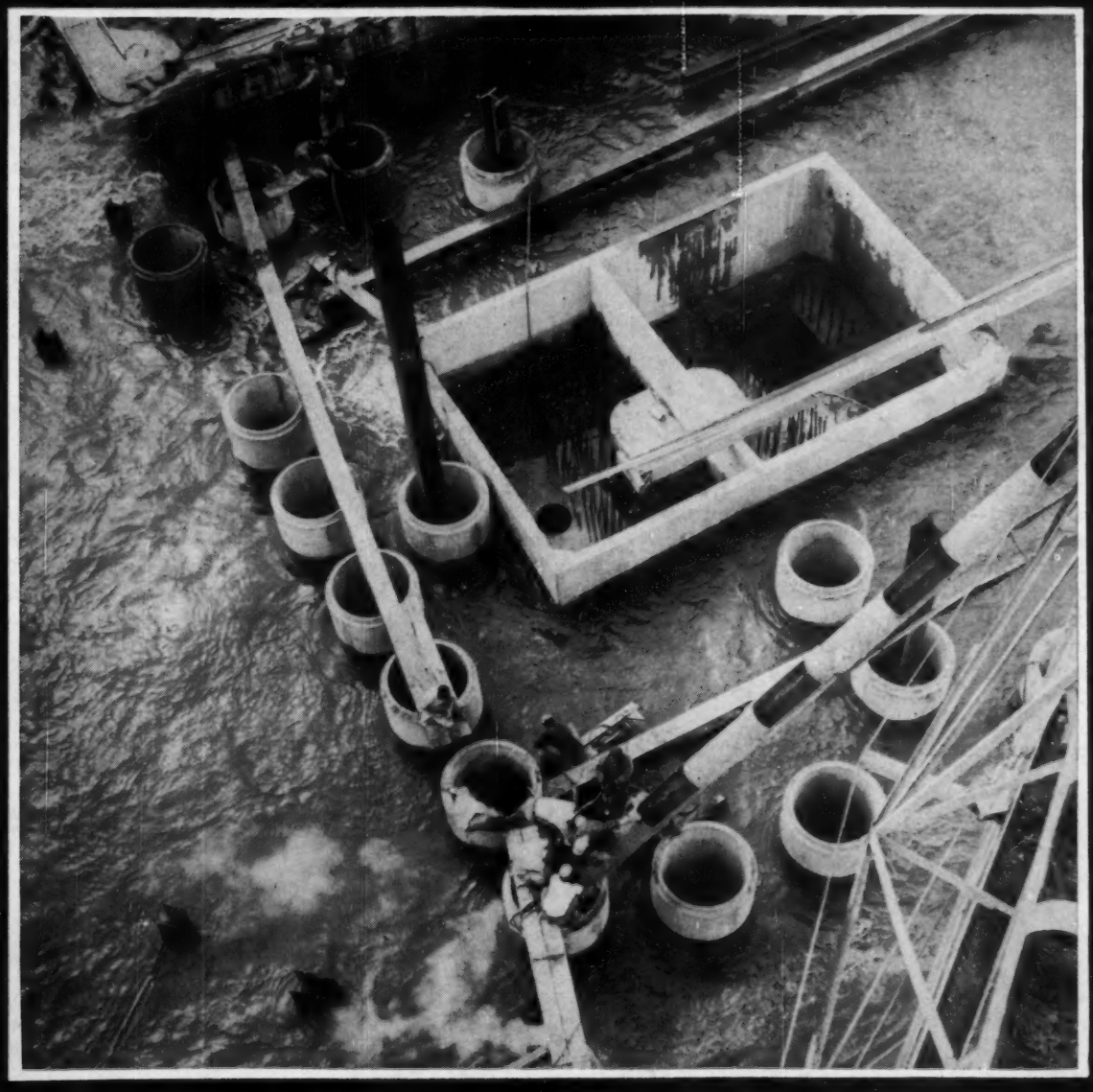
ENGINEERING NEWS-RECORD



E B POWER GS N
UNIVERSITY MICROFILMS IN
313 N 1 ST
ANN ARBOR MICH

A McGRAW HILL PUBLICATION

Oliver Super 77 with hydraulic front loader

Presenting . . . the Brand-New

OLIVER SUPER 77 and 88

Super new power . . . features . . . value!

Here are the newest tractors in the industrial field—the Oliver Super 77 and 88!

Here is power like never before. And both Supers offer a choice of gas or diesel engine. The gas engine has a compression ratio of 7.0:1 to give you more power on less fuel. And the diesel is a full diesel—starts and runs on diesel fuel alone. Pick the fuel that fits your work, saves the most.

Here are tractors that have the features you want—five working speeds, one road speed; long-lasting double-disc brakes; easy ball-type steering; comfortable rubber spring seat; Independent Rear Power Take-Off and many other advancements found only on Oliver Supers.

These tractors take a variety of equipment . . . are useful on hundreds of different jobs. Test them yourself. Find out why an Oliver Super is your best buy for power, features and value—now, and for years to come! See your Oliver Industrial Distributor for a demonstration.

THE OLIVER CORPORATION

400 W. Madison Street, Chicago 6, Illinois

A complete line of industrial wheel and crawler tractors

Oliver Super 88 with HydroTrencher. This trencher has a ½-yard capacity and quick, positive hydraulic control. It digs to 12 feet, loads to 12 feet.

Galvanized Beth-Cu-Loy culverts simplify installation and maintenance

Because it is made of steel, a culvert of Beth-Cu-Loy galvanized sheets is strong, yet light enough to be handled easily and economically. Its flexibility makes grade maintenance and alignment relatively easy. Its long lengths reduce the number of field joints. And its copper content, plus generous prime zinc coating, provide rust-resisting qualities that assure long service life for the pipe.

Galvanized steel offers many other advantages for drainage installations. Culvert pipe made of galvanized steel will withstand impact and the actions of freezing and shifting soils. It needs no cradling in unstable soils, and does away with the root hazard. It conforms to the rigid standards of the American Association of Highway Officials' specifications.

Bethlehem does not fabricate culvert pipe, but manufactures Beth-Cu-Loy galvanized culvert stock for those who do fabricate it. For the names of fabricators in your area, just drop a line to the nearest Bethlehem office.

Culvert can be shop-made in long sections, reducing number of field connections. Simplicity of joints themselves is another economy feature.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

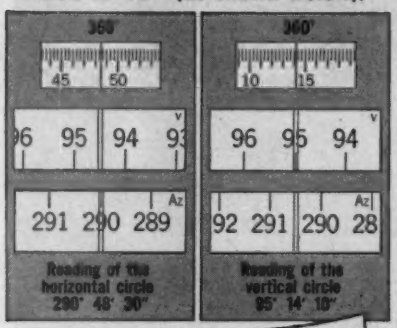
AT YOUR REQUEST IT'S HERE...

The NEW 20" Reading

WILD HEERBRUGG® T-1

OPTICAL *Repeating* TRANSIT

In answer to many requests, available now as an alternative to the Standard Model (reading direct to 1', interpolation to 6"). The New Model WILD T-1 Optical Repeating Transit gives direct reading to 20" on both circles, easy interpolation to 10" (as shown below).



The WILD T-1, with years of proven service under all field conditions, is the most widely used modern transit because it offers you: - full behind-instrument operation, a built-in optical plummet for fast set-up, an optical micrometer reading system which eliminates possibility of error. It sets on zero and repeats angles. Illumination is provided by daylight mirror or battery attachment for night, tunnel or mine work. Made by the world's largest surveying instrument manufacturers and backed by full factory service here.

T-1 TRANSIT $740
Reading direct to 20 seconds, interpolation to 10 seconds.

T-1 TRANSIT (Standard Model) $722
Reading direct to 1 minute, interpolation to 6 seconds.

(All Model Tripods Extra)

PRICES F.O.B. PORT WASHINGTON, N. Y.

•

For details phone or write for Booklet EN 414

WILD HEERBRUGG INSTRUMENTS INC.

MAIN & COVERT STS., PORT WASHINGTON, N. Y.

PORt Washington 7-4843

ENGINEERING NEWS-RECORD

ABP Member ABC

Editorial Offices, 330 W. 42nd St., New York 36, N. Y.

Telephones: New York - LOngacre 4-3000; Chicago - MOhawk 4-5800; San Francisco - DOuglas 2-4600
Washington - REpublic 7-6630

Number of copies of this issue printed 66,874

CONTENTS ON PAGE 17

Waldo G. Bowman

Editor

E. E. Halmos, Jr. ..... *Managing Editor*
J. J. Christie ..... *Asst. Managing Editor*
V. T. Boughton ..... *Transportation, Power*
F. S. Merritt ..... *Architectural, Structural*
S. C. Jensen ..... *Materials and Equipment*
A. J. Fox, Jr. ..... *Hydraulic, Water Supply, Sanitation*
Ross Hazeltine ..... *National Affairs*
J. P. Chamberlain ..... *Business and Finance*
R. W. O'Neill ..... *Highways, International*
J. R. Owen ..... *Municipal*
C. J. Harding ..... *Labor, Men and Jobs*
J. R. Carr ..... *Midwest (Chicago)*
L. L. Wise ..... *West (San Francisco)*
N. A. Bowers ..... *Consultant (San Francisco)*
Elsie Eaves ..... *Business News Department*
J. H. Webber ..... *Economics*
J. A. Mahoney, M. Wetzel ..... *Construction Reports*
M. W. Roessler, E. R. Huber ..... *Statistics, Costs, Prices*
M. V. Leggiero ..... *Makeup*
B. J. Lamb ..... *Rewrite*
J. C. Greenough ..... *Printing*

Washington News Bureau, Room 1189 National Press Building; G. B. Bryant, Jr., *Manager,* Glen Bayless, A. E. Adams, Jay Flocken, Boyd France, William Gilmour, Sam Justice, D. O. Loomis, Gladys Montgomery, A. L. Moore, William Olcott, M. A. Reichek, Caroline Robertson, J. T. Skelly, V. B. Smith.

Domestic News Bureaus: Atlanta, 1321 Rhodes-Haverty Bldg., W. A. Kearns; **Cleveland,** 1510 Hanna Bldg., R. A. Cochran; **Detroit,** 856 Penobscot Bldg., J. C. Jones Jr.; **Houston,** 1303 Prudential Bldg., J. A. Lee; **San Francisco,** 68 Post Street, M. C. Ralston; **Los Angeles,** 1111 Wilshire Blvd., John Shinn; **Seattle,** 6040 Fifth Ave., N.E., Ray Bloomberg.

Correspondents: Albany, Albuquerque, Augusta, Me., Austin, Boston, Boulder, Baltimore, Birmingham, Bismarck, Charleston (W. Va.), Charleston (S. C.), Columbus, Cincinnati, Cleveland, Chicago, Cheyenne, Dallas, Denver, Detroit, Durham, Harrisburg, Helena, Houston, Hartford, Indianapolis, Jackson, Miss., Jacksonville, Jefferson City, Kansas City (Mo.), Lansing, Lincoln, Little Rock, Miami, Memphis, Minneapolis, Montgomery, Milwaukee, New Orleans, Norfolk, Omaha, Oklahoma City, Philadelphia, Pittsburgh, Portland (Ore.), Providence, Phoenix, Pierre, St. Louis, Schenectady, Syracuse, St. Paul, Seattle, Salt Lake City, Spokane, Topeka, Trenton, Wilmington. **Canada:** Montreal, Toronto, Ottawa, Victoria, Regina.

McGraw-Hill Economics Department: Dexter M. Keezer, director; W. H. Chartener

Foreign News Bureaus: Editor, John Wilhelm; Associate Editor, Georgia Macris, **New York;** G. W. Schroeder, **Bonn;** Edward W. S. Hull, **London;** John H. Kearney, **Mexico City;** John O. Coppock, **Paris;** Dan Kurzman, **Tokyo;** L. J. Holmes, **Sao Paulo. Correspondents:** Amsterdam, Athens, Bangkok, Bogota, Bombay, Brussels, Buenos Aires, Caracas, Copenhagen, Geneva, Havana, Helsinki, Johannesburg, Lima, Madrid, Melbourne, Oslo, Rome, Stockholm, Sydney, Tehran and 21 other principal cities and countries.

Robert F. Boger

Publisher

April 14, 1955 ENGINEERING NEWS-RECORD Vol. 154, No. 15

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. **Executive, Editorial, Advertising and Subscription Offices, McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Publication Office, 99-129 North Broadway, Albany 1, N. Y. Donald C. McGraw, President; Paul Montgomery, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Nelson Bond, Executive Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Joseph H. Allen, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Circulation Director. **SUBSCRIPTIONS:** Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address. Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. **Position and company connection must be indicated on subscription orders.** Single copies 25¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada $8.00 a year; $12.00 for two years; $16.00 for three years. Other Western Hemisphere and the Philippines, $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y. under Act of Mar. 3, 1879. Printed in U. S. A.

Copyright 1955 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

B.F.Goodrich

All-Nylon All-Purpose tires help build Kansas county highways

TWENTY-EIGHT units are constantly kept busy building and maintaining the network of roads that crisscross Marion County, Kansas. Tons of fill dirt, rock and gravel must be hauled 48 hours a week over back roads, often over no roads at all.

MASSIVE CLEATS in the All-Purpose tread are curved for greater gripping action. "Buttons" on alternate cleats defy slippage. And the center rib of this BFG tire widens as it wears, putting more and more rubber on the road for longer service.

The result could be a high rate of tire mortality if the county didn't use new B. F. Goodrich *all-nylon* All-Purpose tires. This is the tire that's built upside down to resist rock bruises far better than ordinary tires. Instead of having breakers just on top of the plies, the All-Purpose in addition has special breakers between the *bottom* plies to guard against bruises that start inside the tire.

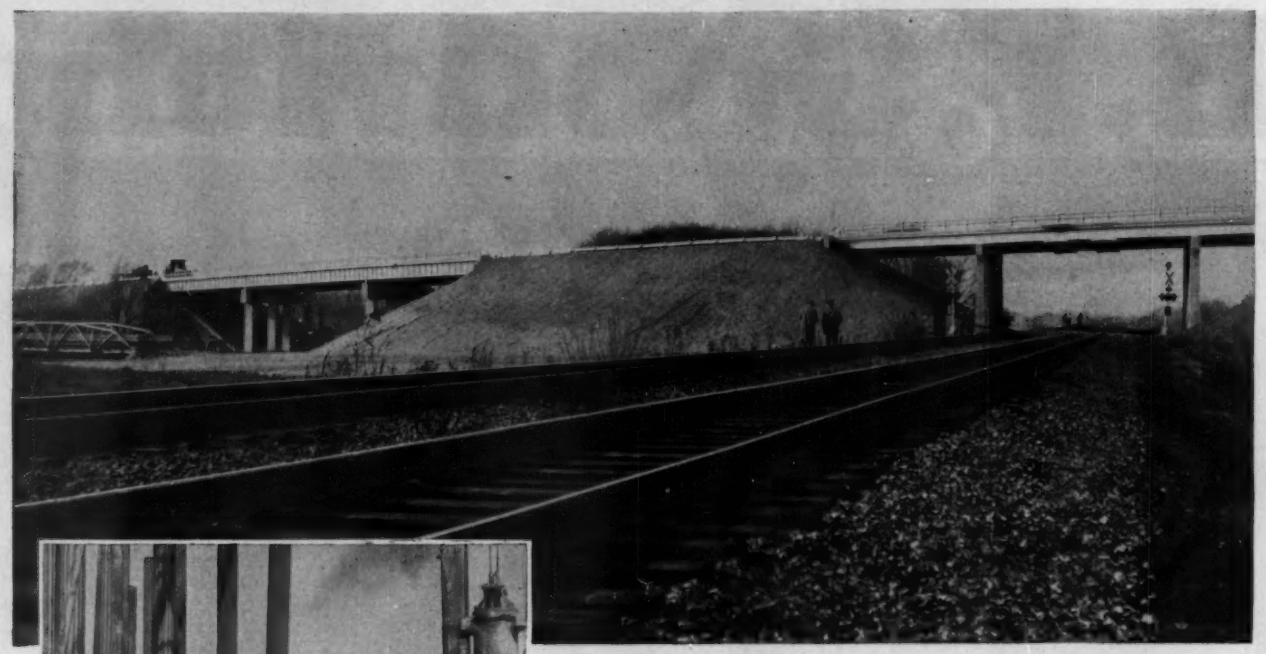
All-Nylon Construction

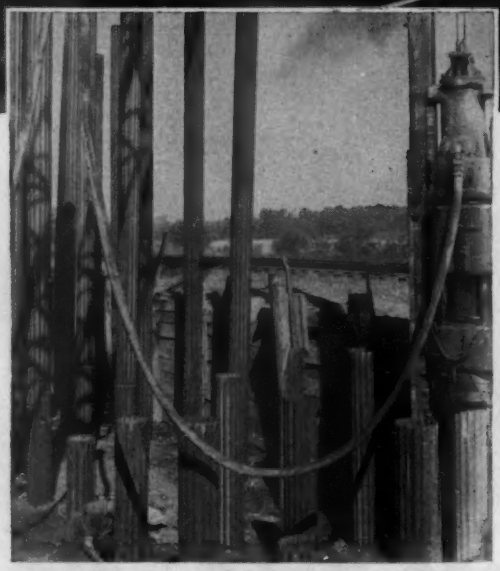
B. F. Goodrich builds the All-Purpose with an *all-nylon* body. Nylon is stronger than ordinary cord materials, can withstand double the impact. This B. F. Goodrich tire outwears even its extra-thick tread—as much as 67% deeper than that of a regular tire—and can still be recapped over and over!

Find out how much more mileage you'll get, how much money you'll save, with B. F. Goodrich *all-nylon* All-Purpose tires (also in rayon at lower prices). Your B. F. Goodrich retailer is listed under Tires in the Yellow Pages of your phone book. Or write *The B. F. Goodrich Co., Tire & Equipment Division, Akron 18, Ohio.*

Specify B. F. Goodrich tires when ordering new equipment

RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER





Pile driving and extending under way for Ohio's two new Route 30 bridges (above) engineered by Bureau of Bridges, Ohio State Highway Dept. 286 eighty-foot Monotubes, with 8" tip and 12" butt diameter, were driven. General Contractor: The Lewis and Frisinger Co., Ann Arbor, Mich. Pile Driving Contractor: The Purdy Construction Company, Mansfield, Ohio.

Note the narrowness of this old bridge and the hazardous approach curve which have now been eliminated by Ohio's new Route 30 bridges.

MONOTUBES "go in" for faster, safer traffic and unmatched economy!

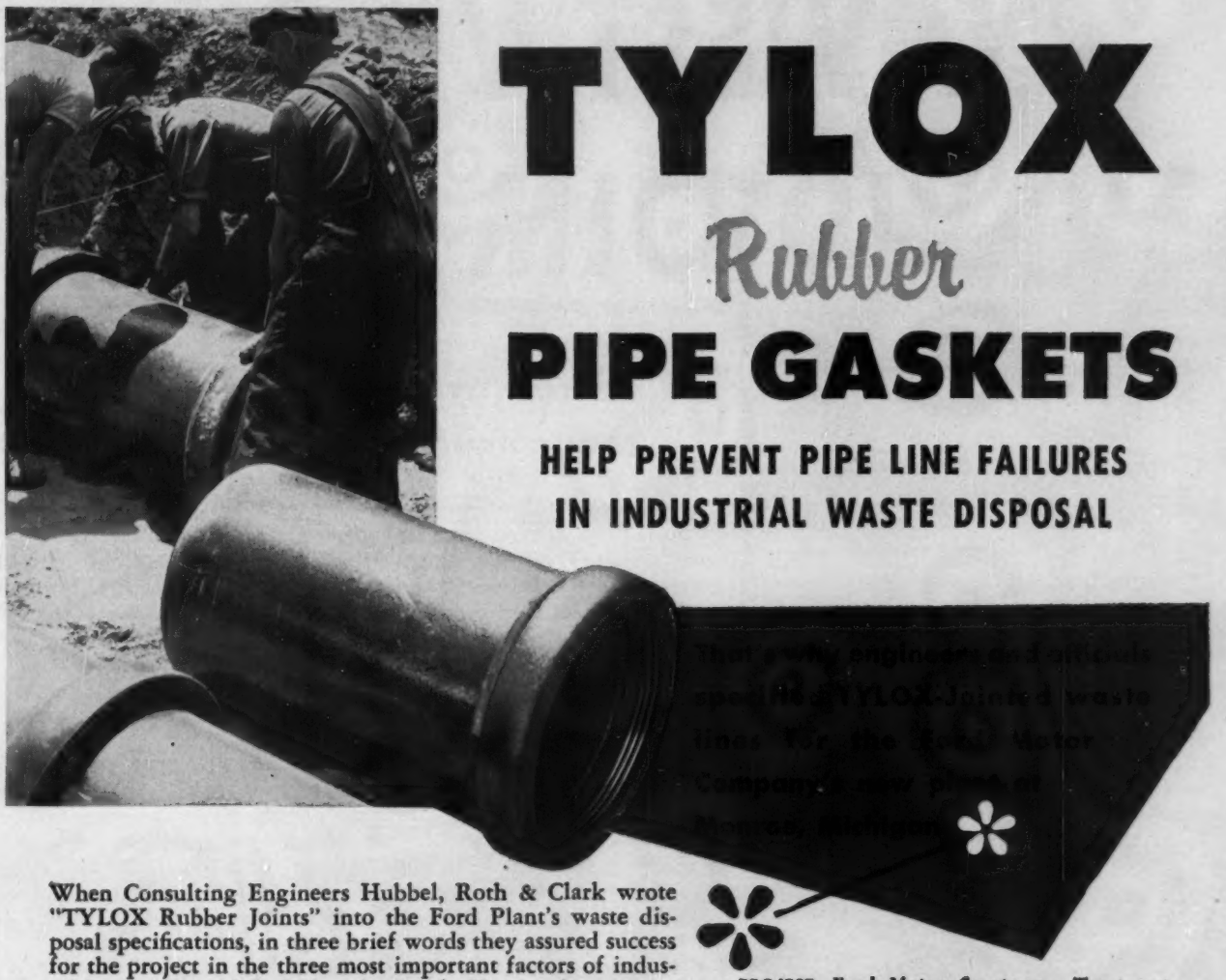
THESE new bridges at East Union, Ohio, on the heavily traveled Lincoln Highway, eliminate a triple threat . . . a small bottleneck bridge, a bad curve, and a hazardous railroad crossing. Both bridges are supported by rugged, cold-rolled Monotube foundation piles.

And speaking of eliminating threats, here's another case where Monotubes saved time and money by licking an unexpected problem. The piles had to go much deeper than anticipated, but due to Monotubes' simple field extendibility, the required penetrations were readily achieved using the same light crawler crane with which the job was started—no penalty for heavier equipment.

You stand to gain many other advantages with Monotube piles. Write to The Union Metal Manufacturing Co., Canton 5, Ohio, for Catalog No. 81.

UNION METAL

Monotube Foundation Piles



TYLOX
Rubber
PIPE GASKETS

HELP PREVENT PIPE LINE FAILURES IN INDUSTRIAL WASTE DISPOSAL

When Consulting Engineers Hubbel, Roth & Clark wrote "TYLOX Rubber Joints" into the Ford Plant's waste disposal specifications, in three brief words they assured success for the project in the three most important factors of industrial sewerage and drainage pipe work. Here's why:

TYLOX IS CORROSION PROOF — Destructive acid action works overtime in industrial sewers, but can't harm TYLOX Joints. They're made of acid and alkali-resistant rubber which safely handles corrosive wastes.

TYLOX IS LEAK PROOF — *Multiple* sealing surfaces, all under compression, keep waste water in, and ground water, roots and sediment *out* of the pipe. No infiltration . . . no exfiltration with TYLOX; therefore no costly line failures resulting from either.

TYLOX IS FLEXIBLE — Shock loads . . . heavy overburdens . . . deep fills . . . all acute factors in industrial areas, can't rupture the TYLOX *compression* seal.

These TYLOX advantages, *plus* their cost-saving speed of installation and long life (they outlast the pipe itself) are why leading engineers are regularly specifying TYLOX for big and little pipe jobs the world over. Specify TYLOX RUBBER JOINTS to protect *your* next pipe project from the troubles and cost of joint failures.

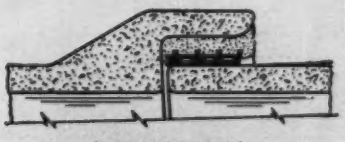
Write today for complete specification data and literature on TYLOX Rubber Pipe Joints

PROJECT: *Ford Motor Company — Treatment Plant at Monroe, Michigan*

ENGINEERS: *Hubbel, Roth & Clark, Detroit, Michigan*

PIPE: *Vitrified Clay with integrally cast TYLOX Rubber Joints. Manufactured by Universal Sewer Pipe Corporation, Cleveland, Ohio*

CONTRACTORS: *Robert Carter Company, Toledo, Ohio*

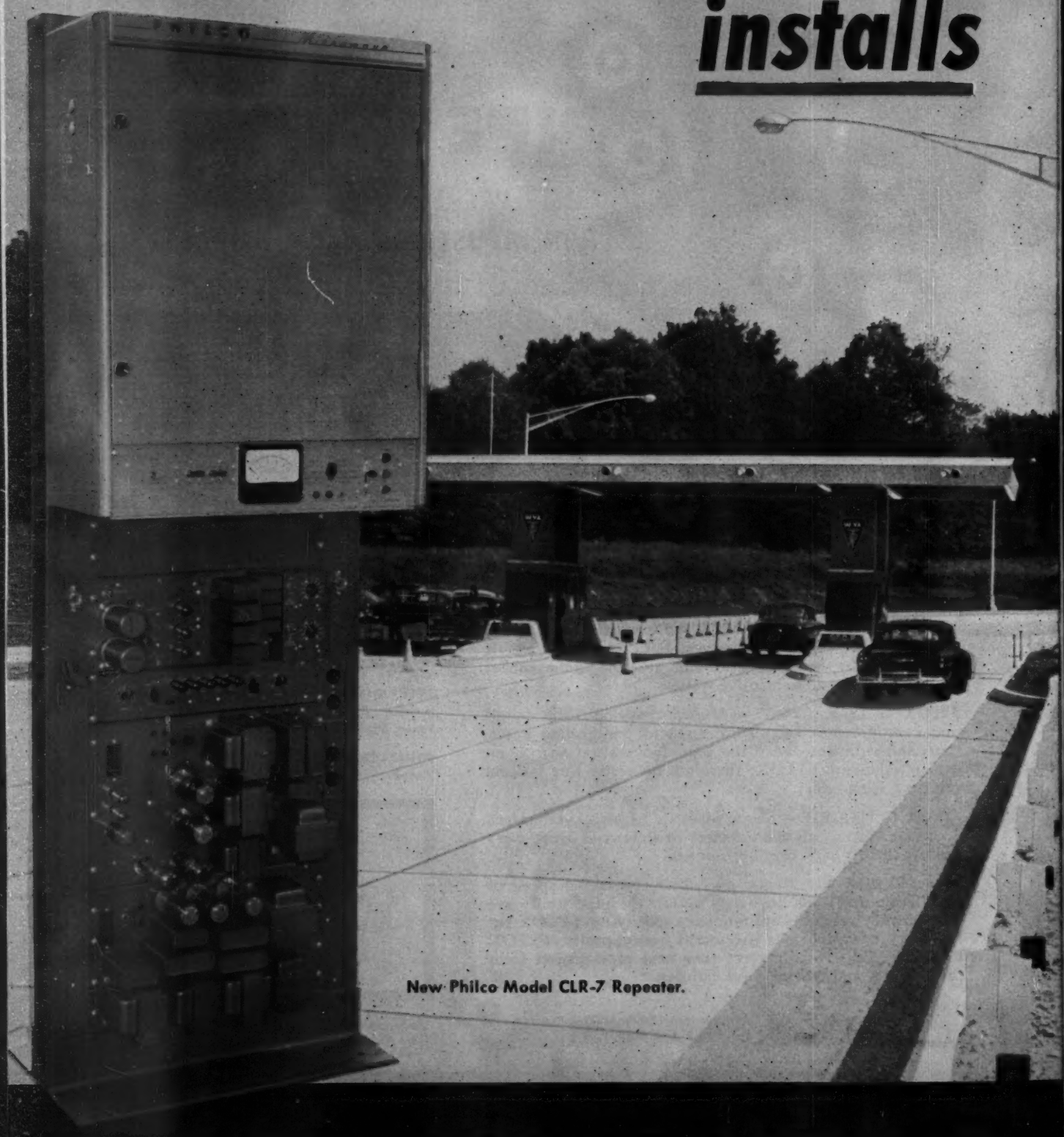


TYPE "B" GASKET
For Bell-and-Spigot Pipe

This rubber-tight mechanical seal stays tight "for the life of the line."

1952

THE NEW WEST VIRGINIA *installs*



New Philco Model CLR-7 Repeater.

PHILCO CORPORATION

TURNPIKE
PHILCO MICROWAVE!

A Great New Superhighway—with the Most Modern Communications

Now open to traffic, the West Virginia Turnpike marks completion of one of the most difficult road-building projects in the nation's history. In the words of C. H. Peterson, Project Engineer for Howard, Needles, Tammen & Bergendoff, Consulting Engineers: "Mountains had to be literally moved into valleys, before paving could begin on sections of the 88-mile throughway" which extends from Charleston to Princeton, West Virginia.

For greatest safety and efficiency in traffic control, the turnpike is equipped with the new Philco Model CLR-7 microwave communication system, which features simplicity, economy and continuous unattended operation—*it virtually runs itself, 24 hours-a-day!*

The complete communication system consists of a multi-hop microwave system integrated with VHF two-way radio installed in 10 base stations and 24 mobile police, fire protection and highway maintenance vehicles. The range of these VHF units is extended to the entire length of the turnpike by the microwave system.

Philco maintains a staff of experienced field and system engineers, to help you plan your communication system . . . to install and maintain it—*at surprisingly low cost.* Phone or write Philco, Dept. ER today for information without cost or obligation.

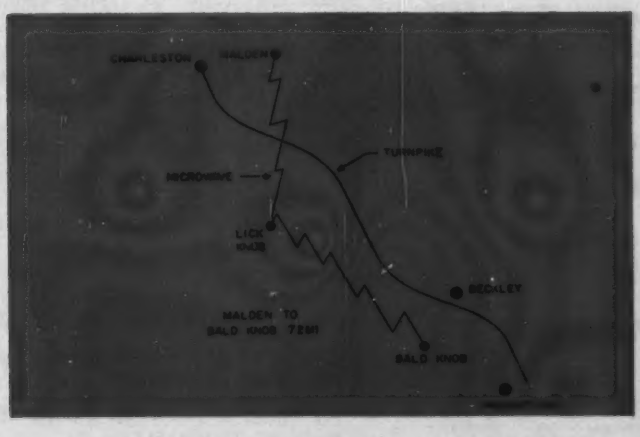


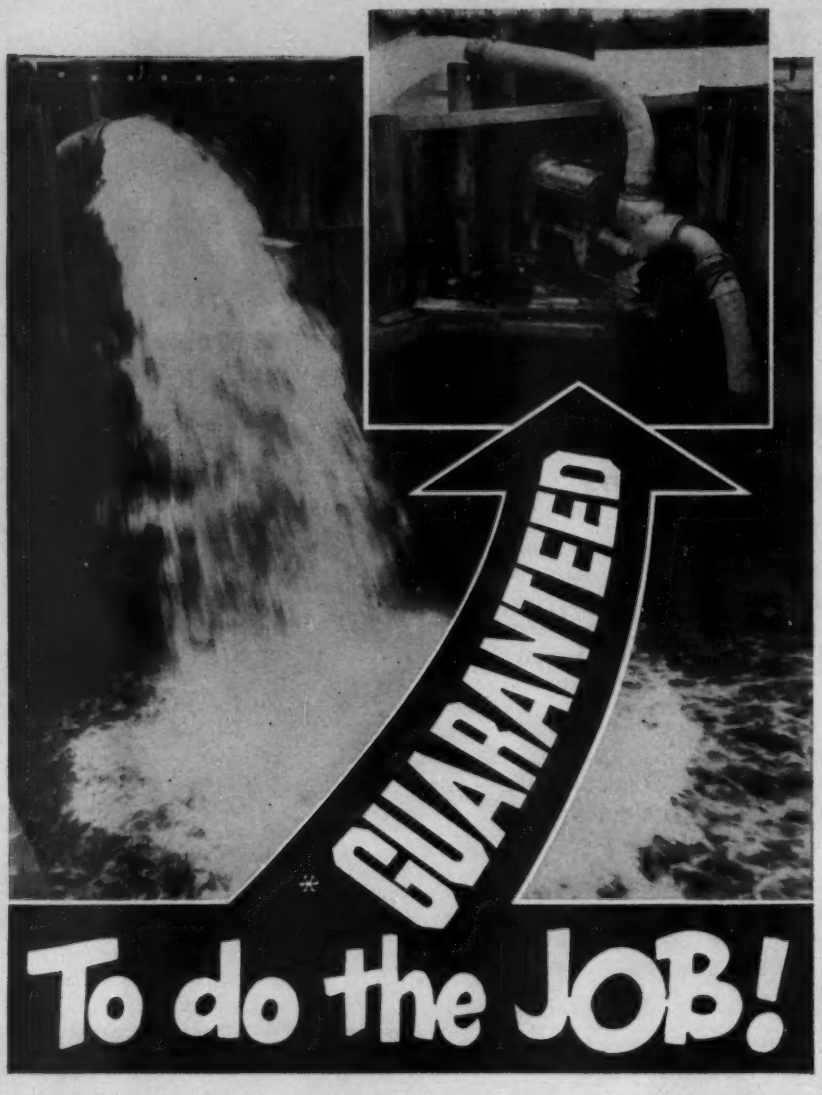
Diagram of Turnpike and Microwave Routes.

Microwave dish at Malden Terminal Station.

Microwave Terminal Station at Bald Knob.

GOVERNMENT AND INDUSTRIAL DIVISION • **PHILADELPHIA 44, PENNSYLVANIA**

IN CANADA: PHILCO CORPORATION OF CANADA LIMITED, DON MILLS, ONTARIO



The river pours in — cofferdam piles spring leaks — men take risks or work is held up by flood water.

Dependable pumps are of vital importance, working side by side with the men, shift after shift, day in, day out.

To meet target dates, concrete pouring must be non-stop, trucks must move, the job must hum! Keep pumping and you do it.

Make sure — put Gorman-Rupps on the job *before* you have trouble. Our plain language guarantee is backed by a long record of proven performance *On-The-Job.*

**Ask for Bulletin and the Guarantee*

NOTES FROM THE FIELD

At the Sandusky River bridge on the Ohio Turnpike Gorman-Rupp pumps worked around the clock with men on 3 shifts. At times they pumped 3 weeks continuously, 24 hours a day and no trouble.

THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

READER COMMENT

Engineer Shortage?

SIR: The note in your Searchlight Section a few issues ago, asking advertisers to answer responses to their ads, pleased me, for I have been responding to those ads and receiving no acknowledgements. I am a registered professional engineer, and for the past 20 years have been making construction and associated activities my career. I have served, successfully I believe, in every field capacity from laborer to project manager, and in every office capacity from draftsman to project supervisor. My employers have been construction contractors, owner-clients, and architect-engineers. I like construction, but:

Of 41 ads in the most recent issue received, in which applications for employment are solicited, I find from reading them that I could do a creditable job in 19 of the positions offered. Six of those were blind ads, of the type from which I have not been receiving acknowledgements. Scratch six of the 19. Eight bore identification of municipalities or other low-salaried activities. Scratch eight more. Four more have accepted my applications, and responded with the information that they had nothing for me to do, but they are still advertising for help. That leaves one for me to answer with an application. Now:

Let's stop all of this false propaganda about the alleged shortage of engineers. It only comes from a minority of self-unscrupulous employers anyway, who do not want to recognize engineering as a profession, but who want professional caliber performance for low salaries. Remember, that the best of salaried positions are no better than the most irresponsible person who might become your superior on the organization chart. Also, stop the controversy about unionization of engineers. Real engineers don't want it. If it occurs, that will be a result of pernicious practices of employers.

E. M. RAUH
Tulsa, Okla.

For the Defendant

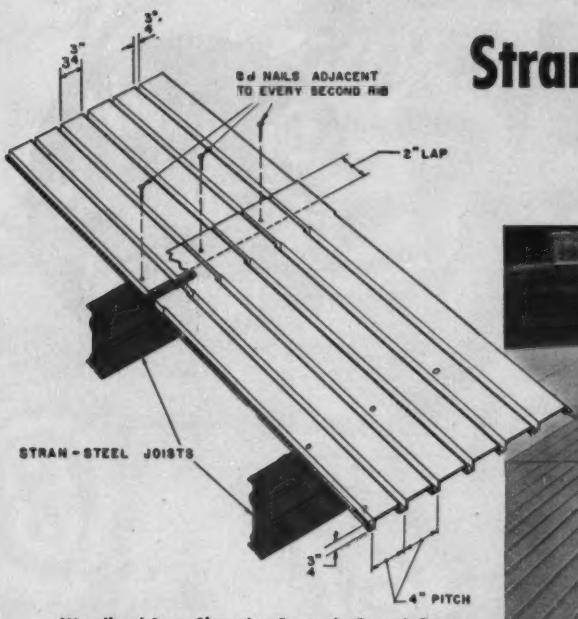
SIR: Your story "Texas Courts Water Ruling" (ENR Mar. 24, p. 27), which concerns the Texas Supreme Court's ruling that moving water from artesian wells through stream beds and lakes with resultant loss from seepage and evaporation is not wasteful. This article indicates the evidence

(*Continued on page 12*)

Premium quality . . . at no extra cost

Stran-Steel® Galvanized Decking

for use with Stran-Steel Framing



Woodland Acres Shopping Center in Green's Bayou, Texas, utilizes 26-ga. Stran-Steel galvanized roof deck nailed to 9" Stran-Steel joists, on 24" centers. Built-up roof was applied over ½" fiber glass insulation. Architects: DUNAWAY AND JONES, Houston. Distributor: BUIE BLDG. MATERIAL CO., Houston.

STRAN-STEEL DECKING IS . . .

LIGHTWEIGHT but STRONG: Dead load savings up to 10 lbs. Total weight of this dry system, including 1" of insulation board, is less than 3 lbs. per sq. ft. Great strength-to-weight ratio assures maximum economy in materials.

ECONOMICAL: Competitive with poured-in-place decks. Galvanized coating assures long life . . . no painting is required.

EASY TO INSTALL: A 5-man crew can install up to 14,000 sq. ft. in an 8-hr. day. Insulation and built-up roofing can be applied *immediately* after erection. Erection is simplified by accurate fabrication and uniform pattern of decking.

AVAILABLE: On-the-spot distributors and dealers in all major building centers . . . with trained technical personnel to assist you in design and fabricating problems and adaptations to meet local conditions.

New Catalog!

Stran-Steel Div.
Great Lakes Steel Corp.
Ecorse, Detroit 29, Mich.

Please have your representative give me your new catalog and other information, without obligation.
I am a: Builder ☐ Architect ☐ Engineer ☐ Owner ☐ planning the design or construction of: School ☐ Church ☐ Hospital ☐ Dwelling ☐ Commercial or Industrial Building ☐ Interior Steel Partitions ☐ Other_____

Name_____

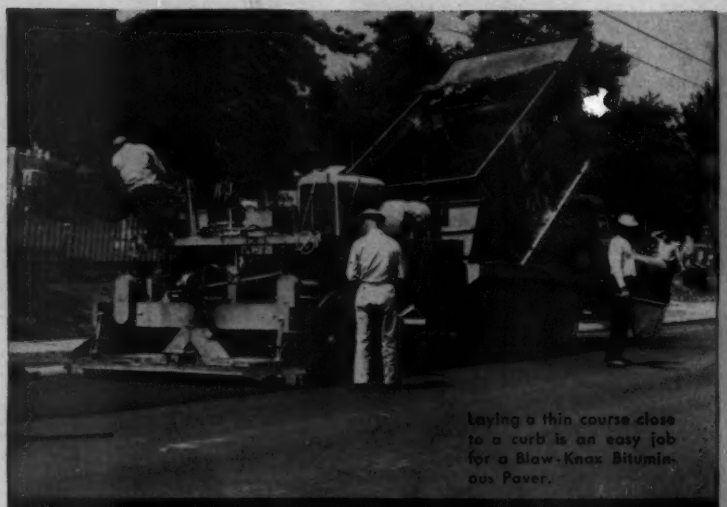
Company_____

Street_____

City_____ Zone_____ State_____

E

Stran-Steel Division
GREAT LAKES STEEL CORPORATION
Ecorse, Detroit 29, Mich. • A Unit of
NATIONAL STEEL CORPORATION



Laying a thin course close to a curb is an easy job for a Blaw-Knox Bituminous Paver.

Here's a job that had to be done fast. The Liberty Tube in Pittsburgh, laid in two night shifts by the Harrison Construction Co.

On wheels it will pave for less

THAT business of completely rebuilding your Bituminous Finisher is a costly one. Take a look at the frame above. That is the backbone of the Blaw-Knox Bituminous Paver Finisher. Here is one big reason why you may *never* have to *rebuild your Blaw-Knox. No other Bituminous Finisher* has a Frame like this. Here is rugged construction that can take the road strains and the vibration necessary to make a Bituminous Paver deliver good results.

But, that isn't all. Road shock and machine vibrations that are in time destructive and cause wear in crawler equipment are readily absorbed by rubber-tired traction. Easy access to all parts for lubrication and adjustment makes upkeep easy and reduces the likelihood of maintenance being skimped.

If you are bidding on asphalt work you owe it to yourself to find out about the Blaw-Knox. Don't saddle yourself with continual rebuilding costs. Even if you have asphalt spreading equipment which you feel may be adequate you will cut your costs and increase profits by replacing it with the Blaw-Knox. Look over the advantages listed below and get all the details.

If you don't have these Bituminous Paver advantages you are losing money!

- *Wheel Steering* with long wheel base eliminates the over-steering of crawlers and assures greater accuracy, a smoother course and better joints.
- Wheel mounting eliminates the 600 to 700 parts characteristic of crawlers.
- Wheel mounting absorbs vibribation, reduces chatter in screed and wear and tear on machine.
- Dual Controls—handle machine from either side.
- Handles boxcar trucks with ease.
- Compacts to uniform density and automatically measures and levels.
- Long wheel base and leveling principle equalizes ordinary subgrade irregularities.
- Simpler, more easily adjusted crowning device.
- Easily tows to new location and gets back to lay parallel course in a fraction of the time required for crawlers. Reduces truck standing time.
- The only Bituminous Finisher with positive traction at *all times*.

OUTPRODUCES ANY OTHER ASPHALT FINISHER ON THE MARKET TODAY

You may NEVER have to REBUILD your Bituminous Paver

BLAW-KNOX

Laying a sandy asphalt mix (ID-2) on County Road Work in Pennsylvania. The Blaw-Knox laid 4.2 miles of 18-ft. road, 1½ in. thick in 16 hrs. and 35 min.

BLAW-KNOX COMPANY
CONSTRUCTION EQUIPMENT DIVISION
1922 State Street
Nunda, New York

BLAW-KNOX

ADNUN JR.

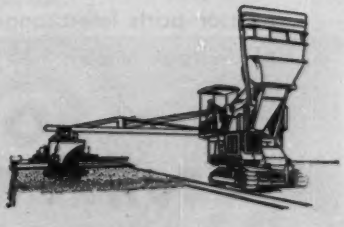
For those driveway and parking lot jobs the Adnun Jr. will make money. Power saves truck time. Continuous Course Correction gives a smoother surface—and it tows to the job—no trailer is required.

Ask for a Catalog.

MULTI-FOOTE

The MultiFoote Concrete Paver has long been a standard for highway paving. Shovel-type crawlers with self-cleaning action, fast charging and discharging, and better vision, mean greater output on the job.

Ask for a Catalog.



SCHRAMM 75 C.F.M.
AIR COMPRESSOR

NOT JUST SPEEDED UP... BUT...
IT HAS LARGER BORE
IN ENGINE AND COMPRESSOR!

FEATURES of Schramm's new 75 c.f.m. air compressors include:

* OVERHEAD VALVE ENGINE . . . thus economical in power and fuel

* MECHANICAL INTAKE VALVE . . . with Schramm patented intake valve unloaders

* INTERCHANGEABLE PARTS . . . engine and compressor parts interchange—also interchange with parts of Unistage models 125 engine and compressor.

Write today for Catalog 5501-75

SCHRAMM, INC.
WEST CHESTER • PENNSYLVANIA
SCHRAMMAIR YOUR JOBS

READER COMMENT

showed that as much as 63% to 74% was lost in transfer. While it is true that the plaintiffs brought out this testimony, the defendant proved conclusively, by expert testimony, that under normal operating conditions, based upon the experience of stream flow records during the past forty years, that the average loss was approximately 20%. The high percentage loss figures quoted in your article are those for extreme conditions. It would be well to point out, too, that artesian wells were providing an emergency interim water supply that was to be used only until such time as a dam could be completed on the Nueces River and thereby furnish a permanent dependable supply.

VICTOR JAEGGLI
General Manager and Chief Engineer
Lower Nueces River Water Supply District
Corpus Christi, Tex.

CALENDAR

National Engineering Conference of the American Institute of Steel Construction, Hotel Muehlebach, Kansas City, Mo., April 18-19.

Building Research Institute, annual meeting, Princeton, N. J., April 18-19.

National Air Pollution Symposium, Huntington-Sheraton Hotel, Pasadena, Calif., April 18-20.

Prestressed Concrete Institute, convention, The Lago-Mar Hotel, Ft. Lauderdale, Fla., April 21-22.

New York Section of the American Water Works Association, annual spring meeting, Hotel Statler, Buffalo, N. Y., April 21-22.

Society for Experimental Stress Analysis, spring meeting, Hotel Statler, Los Angeles, Calif., April 27-29.

Society of American Military Engineers, annual meeting, Waldorf-Astoria Hotel, New York, N. Y., May 5-6.

Annual Conference for Engineers and Architects, Ohio State University, May 6.

Purdue Industrial Waste Conference, Purdue Memorial Union, May 9-11.

Heating, Piping and Air Conditioning Contractors National Association, annual convention, Shamrock Hotel, Houston, Texas, May 10-13.

Engineering Institute of Canada, annual meeting, Royal York Hotel, Toronto, Ont., May 11-13.

Michigan State College Centennial, engineering symposium on the application of automation to building design and construction, East Lansing, Mich., May 12-13.

National Materials Handling Exposition, International Amphitheatre, Chicago, May 16-20.

Structural Engineering Conference, University of Missouri, Columbia, Mo., May 20-21.

Air Pollution Control Association, annual meeting, Detroit, Mich., May 22-26.

National Rivers and Harbors Congress, national convention, Mayflower Hotel, Washington, D. C., May 30-June 1.

National Society of Professional Engineers, annual meeting, Bellevue-Stratford Hotel, Philadelphia, June 2-4.

American Water Works Association, convention, Conrad Hilton Hotel, Chicago, June 12-17.

The American Institute of Architects, annual convention, Hotel Radisson, Minneapolis, Minn., June 20-24.

American Society for Engineering Education, annual meeting, Pennsylvania State University, State College, Pa., June 20-24.

AMERICA'S FASTEST-GROWING BUILDING MATERIAL...
ECONOMICAL...MAINTENANCE-FREE

J. Rich Steers' casting bed used for fabricating Pier C deck members.

THE PRODUCTION of precast concrete members prestressed with 7-wire stress-relieved strands pre-tensioned and bonded has grown enormously in the past two years. Starting virtually at scratch, millions of square feet of bridge deck and floors and roofs for buildings are now being produced . . . part of it in the thirty odd universal casting beds scattered across the country . . . another part in the special beds set up for individual structures such as:

200,000 sq. ft. of heavy deck for Pier C in Hoboken, N. J.;

24 miles of 56-ft. span sections for Lake Pontchartrain in Louisiana;

9,400 feet of 50-ft. span sections for bridge-tunnel crossing at Hampton Roads, Va.

A big reason for this growth is lower cost compared with other materials and with other methods of prestressing concrete. Another is the development by Roebling of stress-relieved 7-wire strand for pre-tensioned bonded work.

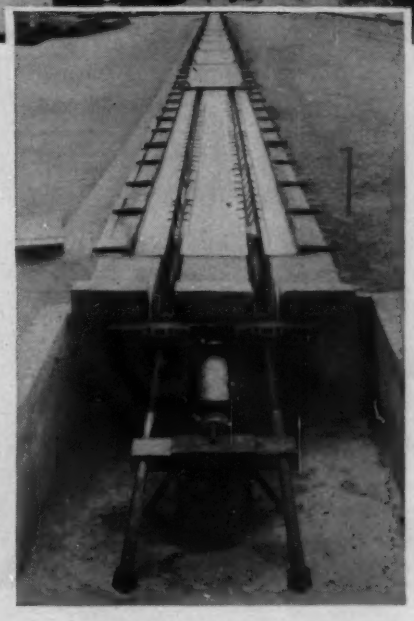
7-wire strand provides about 50% greater surface area for bond than single wires of the same strength. It also provides added mechanical bond as the concrete sets in the valleys between the outside wires.

Stress-relieving the strand raises the yield strength of the steel and produces a more pliable unit. This has made possible the use of still larger units and higher initial stresses with attendant economies in both material and labor costs.

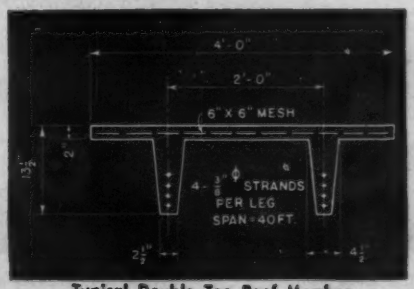
Since its development, Roebling has fabricated millions of feet of 7-wire stress-relieved strand and is ready to meet today's demand. Write us for brochure explaining pre-tensioned bonded prestressed concrete and for answers to any particular questions. Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

ROEBLING (CF)

Subsidiary of The Colorado Fuel and Iron Corporation



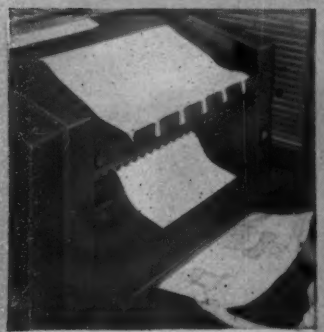
Double Tee casting bed at Duracrete, Inc., Leesburg, Florida. Besides universal beds for fabricating all type members, some plants have beds like that shown here to handle the steady volume of double tees.

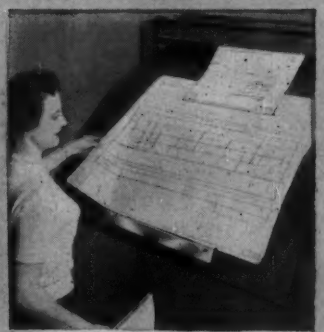


Typical Double Tee Roof Member.

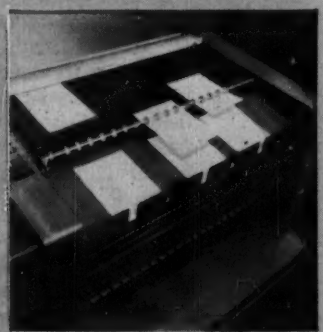
New, High-Speed,
Heavy-Volume Copyflex Model 500
$3250.00 f. o. b. Chicago
40 f.p.m. speed, 200-230 volt operation, 46-inch printing width

Here Are the New, Outstanding Features That Make New Copyflex Model 500 Your Best Buy



Bigger and better front delivery tray takes up to 24" x 42" prints, allows more efficient stacking, speeds production.

Larger rear delivery tray handles up to 30" x 42" prints. Movable magnetic stops provide variable rear stacking.

Model 500 provides fast 40 f.p.m. speed. New type indicator shows actual speed, permits more efficient operation.



Variable front print stacker (optional) is a Bruning exclusive. Control knob gives desired stacking size from 6" to 24".

NEW!

Here it is! The faster, easier-to-use, lower-priced reproduction machine they said couldn't be built!

COPYFLEX MODEL 500

It's another Bruning *first* for you—a more efficient, faster, heavy-volume Copyflex machine that has been built to sell at the low price of $3,250.00 f.o.b. Chicago. It's another first for Bruning engineers and production men who doubted it could be done but who came up with remarkable engineering innovations to do it!

Now, modern Copyflex Model 500 gives you *all* the advantages of Copyflex diazo type whiteprinting, provides equal or greater capacity than much higher-priced machines, offers new and better operating features to help you turn out more work at less cost.

NEW . . . Better Stacking and Delivery!

Large front tray takes prints up to 24 x 42 inches. Large rear tray takes sizes up to 30 x 42 inches. Extra roomy tracing tray further speeds operator's work. Movable magnetic stops in rear tray provide efficient variable stacking. A special tracing stacker, a variable front print stacker, and a print roll-up attachment are available as optional equipment at extra cost.

NEW . . . Positive "Jet-Separation" of Tracings!

A new, patented air-jet type separator device provides automatic positive separation of tracings from exposed sheets, speeds operator's work.

NEW . . . 40 f.p.m. Mechanical Speed!

With a mechanical speed of 40 linear feet per minute, Copyflex Model 500 gives you fast, heavy volume production. Its 4,000-watt quartz lamp and synchronized exposure and developer units assure uniformly sharp, clear prints.

NEW . . . Trouble-free, Selenium Rectifier Drive Controls!

The electrical control system of the Model 500 is free from vacuum tubes, a common source of trouble in most other machines. Use of such devices as variable transformers and 100,000-hour-life rated selenium rectifiers assure efficient, trouble-free operation.

PLUS . . . the famous Problem-free Installation and Operation of Copyflex!

Like all other Copyflex machines, Model 500 is free from fumes and odors, requires no exhaust venting, plumbing, or auxiliary equipment other than an electrical connection.

It is a virtually automatic machine that is easy to operate. Exclusive vacuum feed enables easy insertion of curled originals. Adjustable light shield provides extra convenience and economy in processing extra-fast-printing originals. A special foot treadle allows operator to withdraw or straighten any work which has been fed incorrectly.

All of the famous Copyflex advantages, plus new modern features, are yours in the amazing lower-priced Copyflex Model 500. Take this opportunity to trade in that old machine. Mail coupon today. You owe it to yourself and to your company!

on the Market Today!

Special tracing stacking device (optional) provides efficient stacking of various size originals, up to 12".

Print roll-up device (optional) at rear of machine affords fast, efficient handling of continuous roll stock work.

BRUNING

Specialists in Copying Since 1897

CHARLES BRUNING COMPANY, INC.
4700 Montrose Ave., Chicago 41, Illinois

Charles Bruning Company, Inc., Dept. 1410
4700 Montrose Ave., Chicago 41, Illinois

Please send me information on the new Copyflex Model 500.

Name_____ **Title**_____

Company_____

Address_____

City_____ **County**_____ **State**_____

on a Lock Joint "Foundation"

City planners and engineers are taking a long, hard look at everything connected with water supply — the most serious problem affecting the city's future growth. That's why so many cities, all over the world, have selected Lock Joint Pressure Pipe's greater security, more dependable performance, longer life. They know that their plans for meeting future water supply requirements must include pipes whose high carrying capacity will be as great scores of years from now as it is today.

In addition to a solid foundation for the water supply system of the future, Lock Joint Pressure Pipe offers important economies — low first cost, economical installation, low pumping costs and negligible maintenance charges.

LOCK JOINT PIPE COMPANY

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo.

ENGINEERING NEWS-RECORD

Vol. 154, No. 15 April 14, 1955

Number of copies printed this issue 66,874

CONTENTS

NATIONAL AFFAIRS

Housing Boom Goes on—But Loans Tighten 21
"Grassroots" Hearings Stir Controversy 23
Congress Looks for Way to Exercise Control Over Federal Aid Construction 24
Maryland Toll Highway Approved; Colorado Mountain Tunnel Authorized 24
Colored Panels Form Exterior of Bank Building 25
Tunnel Troubles—Wilson Cave-in Forces Standstill 26
Longest Runway—Albuquerque's Municipal Airport 26
AASHO Test Road—Illinois Testing Project Arrangements Settled 27

FEATURES

Quebec's Head Start on St. Lawrence Seaway 34
Dredge Hydro-Quebec Is Floating Power Plant 39
Tappan Zee Bridge: A Foundation Triumph 44
Dehumidifying Unit Is Key to Low Cost Air-Condition System 47
How to Drive 192-ft Concrete Pile 51

NEW PRODUCTS

Photography Speeds Triangulation 53
A-W Pioneers Converters in Graders 54
Heating Air-Conditioning Unit Said to Operate Quietly 58
Central Control Sends Signals Over Existing Wires .. 61
Publications 62

MEN AND JOBS

Reclamation Official Named to Post in Washington, D. C. M69
Ralph Johnson Appointed NAHB Construction Chief 69
New Transportation Award in Memory of E. A. Sperry 69
Ora G. Baxter Retires From Federal Service 70
Gordon McCallum Heads up Water Pollution Program 70

BUSINESS AND FINANCE

The "Civilian Atom" Takes a Big Step Ahead 110
Industrial Awards Increase Sharply for First Quarter 110
More Exporters of Equipment Get Ex-Im Bank Credit Lines 111
Construction Equipment Sales on Upward Climb This Year 111
Land Acquisition Headaches Still Go on in Connecticut 111
Money Grows Harder to Borrow as U. S. Economic Weather Changes 112
Executives Quit to Form New Equipment Company .. 112
Michigan Voters Approve Construction Bond Issues. 112
Activity This Week 113

LABOR

Legal Jurisdiction—New Court Ruling Narrows Area of Federal Supremacy 116
Allied Masonry Council Gets Union Cooperation ... 116
Philadelphia Carpenters Are Seeking High Stakes .. 116

Reader Comment 8
Washington Observer ... 19
City by City 28
Books 72
Legal 76
Obituaries 80
Construction Report ... 82
Unit Prices 109
Editorials 132

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Price 35¢ each copy except Annual Cost Issue. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

LABOR AND ATOMIC ENERGY—Construction of atomic energy facilities for peaceful purposes may require significant changes in labor policies and procedures. With an eye to the future, the AFL and several of its unions have formed atomic energy committees. And, last week, the boilermakers suggested putting a labor member on the AEC. This is looking ahead to the day when labor leaders will be faced with determining jurisdiction among unions to accommodate new technologies and with developing apprenticeship programs to train new skills. The move also contemplates such problems as reconciling normal labor-management relations with the requirements of security and of the need for revising safety codes and workmen's compensation laws.

PARTNERSHIP PROPOSAL—Four Pacific Northwest power companies are urging the federal government to join them in building the proposed $117-million Bruces Eddy Dam on the north fork of the Clearwater River in Idaho. The combine, Pacific Northwest Power Co., wants the federal government to build the dam and pay for any non-power benefits. The utilities would build a 240,000 kw powerhouse and pay for falling water. If the government rejects the proposal, the four utilities will seek to undertake the entire project themselves, predicts Kinsey M. Robinson, president of PNP. And, he claims, "We can build it cheaper."

QUEBEC POSTPONES SEAWAY POWER—Power will not be developed at the dam which the Canadian Seaway Authority will build at Lachine Rapids, near Montreal. The Province of Quebec, which was to have undertaken the project to harness the 1,200,000 hp in the fall at Lachine, couldn't come to terms with the federal government over allocation of power and navigation costs. Quebec is in a position to drive a hard bargain because the province is under no pressure to tap additional power at this time; it is now developing the big Bersimis scheme (ENR March 3, p. 28.) It is estimated that $50 million could be saved, if Lachine Rapids power and navigation facilities were built at the same time. Still, the dam and associated works will be designed with power development in view and Quebec can exercise its right to develop the power at any time.

ADDRESS CHANGE—Over the objection of some who claim the national capital's atmosphere too rarified for the work of an organization devoted primarily to technical matters, the Federation of Sewage & Industrial Wastes Associations moves its headquarters from Champaign, Ill., effective May 1. New address: 4435 Wisconsin Ave., N. W., Washington 16, D. C.

240,000 Tons of minus 2" railroad ballast

at 550 Tons per hour

In this Medicine Hat plant of Mannix Limited, of Calgary, Alberta

TELSMITH JAW CRUSHER

using only one set of manganese

with

TELSMITH GYRASPHERE CRUSHER

TELSMITH CRUSHERS

Designed to produce railroad ballast . . . and equipped to do it with Telsmith big capacity, low-cost crushers . . . Mannix Limited, of Calgary, Alberta, set up this crushing plant near Medicine Hat.

Material over 4" goes to the 25" x 36" Telsmith Jaw Crusher set at 3½"; and plus 2" to the Telsmith 48-S Gyrasphere set at 1¼". A 100 hp, 1200 rpm motor powers each crusher.

Crushing hard quartzite, the plant produced 240,000 tons of plus ⅜"–minus 2" . . . averaging better than 550 tons per hour . . . and, the Telsmith 48-S Gyrasphere used only one set of manganese.

Its long, high-speed crushing stroke gives Telsmith Gyrasphere maximum capacity; its spherical head gives a uniform, cubical product. Gyrasphere Style S Coarse Crushers: 24" to 48", 3½" to 10" feed openings, 10 to 300 tons per hr. Style FC Fine Crushers: 24" to 48", 2½" to 4" feed openings; 6 to 125 tons per hr. Get Bulletin 274. And Telsmith Equipment Guide 266.

C-10

SMITH ENGINEERING WORKS

500 E. CAPITOL DRIVE **MILWAUKEE 1, WISCONSIN**

Representatives in Principal Cities in All Parts of the World • Cable Address: Songworks, Milwaukee

WASHINGTON OBSERVER

The White House is renewing its push to get Presidential authority to raise or lower interest rates on FHA and VA mortgages. Eisenhower has received first-hand assurances from spokesmen for the housing industry that builders will not oppose this grant of power, as they did last year. The Administration failed to get Congress to approve the plan.

A new effort will be made before Congress adjourns. The President wants to be able to order changes in interest rates so the Administration can act quick to offset any inflationary spiral, or, in reverse, to stimulate the market if it begins to drag (see page 21).

•

Strategy to get huge $1.6-billion Upper Colorado project through Congress as both bouses get closer to a vote.

Key is to drop the controversial $176.4-million Echo Park storage dam which is being fought by the conservationists and southern Californians.

Another move is to have the House restore the $50-million Cross Mountain Dam eliminated by the Senate committee.

Idea is to have both sides win in conference by getting something—thus making it possible to get the Upper Colorado idea approved.

Proponents figure after this happens, worthwhile projects can be added in later years.

Best guess is that this strategy will pay off—that Congress will authorize the key elements of Upper Colorado this year.

•

Political appeal of power and water as election issues in the West was clearly seen during last week's hearings by Senate Interior Committee (see page 23).

Hundreds of people turned out at each of the four towns where hearings were held on the Hell's Canyon power project. While FPC is deciding on Idaho Power Co.'s application for three low dams, the Senate Democrats are still pushing hard for a federal high-dam project.

Republican officials—state and local—opposed the high-dam idea at all four hearings—Boise and Lewiston, Idaho; Pasco, Wash., and Portland, Ore.

Democrats—federal, state, local—backed a federal project at the controversial site.

Crowds at the hearings indicate that Hell's Canyon may be the key to next year's election fight over public vs. private power, federal vs. partnership development of natural resources.

•

Atomic power engineering gets a big boost from AEC's new reactor program which may bring in some 29 power companies to build four power plants at a cost of about $150 million. The plants would be in Illinois, Massachusetts, Michigan and Nebraska.

The utilities will pay about 80% to 90% of the cost of the plants, which are scheduled to come into operation beginning in 1957.

AEC may not approve all the applications but chairman Strauss hails the response to AEC's invitation as tremendously encouraging for the development of the new atomic industry.

•

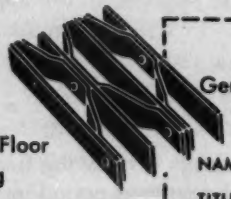
Justice Department admits it is having trouble recovering windfall profits made by builders during the postwar period on rental projects under Section 608 of the housing law.

Top officials tell congressmen there may be nothing illegal about such operation under the law as it existed—which is what building industry officials have been claiming all along.

BORDEN MANUFACTURES EVERY TYPE FLOOR GRATING

IN FERROUS AND NON-FERROUS METALS

- **EASY TO INSTALL** — engineered in conveniently sized units for easy installation.
- **EXTRA STRONG** — reinforced, designed with maximum safety factor.
- **LIGHT WEIGHT** — approximately 80% open, reduces dead weight, allows greater live load.
- **SELF-CLEANING** — creates greater safety, economy of maintenance, no sweeping or washing required.



Write for complete information on BORDEN All/Weld, Pressure Locked, and Riveted Floor Gratings in this FREE 8-page catalog

BORDEN METAL PRODUCTS CO.

815 GREEN LANE Elizabeth 2-6410 ELIZABETH, N. J.
SOUTHERN PLANT—LEEDS, ALA. — MAIN PLANT—UNION, N. J.

BORDEN METAL PRODUCTS CO.

Gentlemen:

Please send me BORDEN Catalog

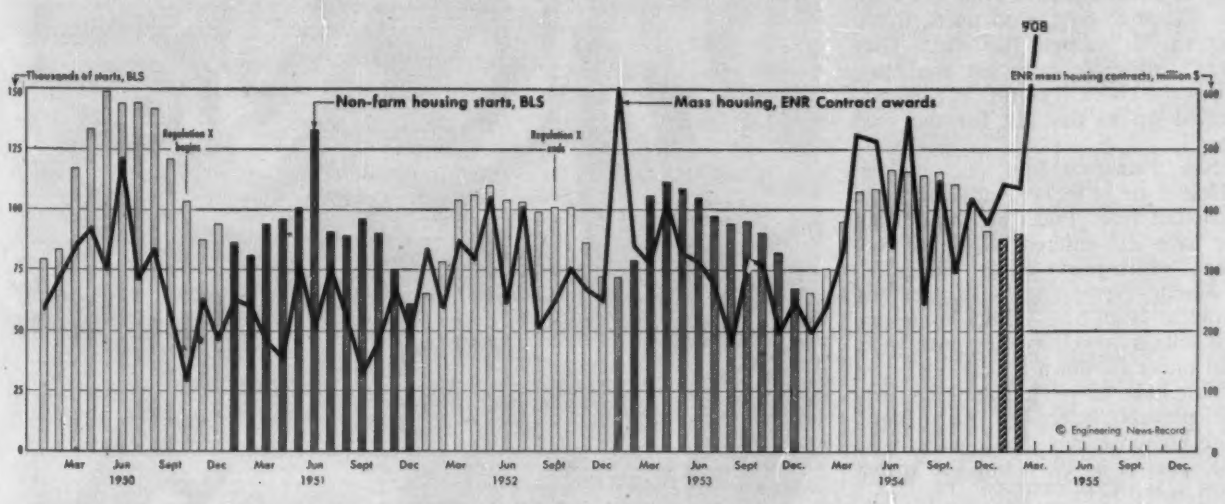
NAME .....

TITLE .....

COMPANY NAME .....

ST. AND NO. .....

CITY AND STATE .....


908
Thousands of starts, BLS
ENR mass housing contracts, million $
Non-farm housing starts, BLS
Mass housing, ENR Contract awards
Regulation X begins
Regulation X ends
© Engineering News-Record
Mar Jun Sept Dec Mar Jun Sept Dec Mar Jun Sept Dec Mar Jun Sept Dec. Mar Jun Sept. Dec. Mar. Jun Sept. Dec.
1950 1951 1952 1953 1954 1955

An ENR Survey Shows:

Housing Boom Goes on—But Loans Tighten

The homebuilding boom is still rolling along with a few signs of a let-up. In fast-growing metropolitan areas—and there are plenty of these around the U.S.—the boom is very strong. That is the consensus of a cross-country survey by ENR correspondents. Figures on ENR housing contracts and Bureau of Labor Statistics home starts tell the same story (chart, above).

For example, on recent weekends home-seeking crowds have mobbed Georgetowne, a projected 4,000-home development a few miles east of Camden, N. J., in the fast-growing Delaware Valley. Houses here range from about $10,000 to $12,000. About 400 were sold in the first four days the tract was opened to visitors. You could see the same mob scene in other parts of the U. S.

But there is a weak point to homebuilding in recent months: Much of it has depended upon the easier credit terms of the Housing Act of 1954. Since the Act was passed, an increasing proportion of mortgages have been underwritten by the Veterans Administration and by the Federal Housing Administration. The 30-year, no-down-payment VA mortgage became common in the last few months of 1954.

• **A little tighter**—Now all across the country mortgage lenders are tightening up a little on their terms. They can grant liberal terms if they wish, but many of them are reducing the number of no-down-payment mortgages they will buy. Within the past few weeks, many lenders have been asking for a point or so more discount. Thirty-year VA paper is now often quoted at three or four percentage points below par, which means that the 4½% yield on the face value of the loan becomes a bit higher.

However, tighter credit terms aren't going to affect many tract builders for months yet. They are working on firm commitments that will provide financing for as much as six months ahead.

The tightening of mortgages has been caused partly by a generally increased demand for money in all sectors of the economy, partly by deliberate action of the Federal Reserve Board and the Treasury (see page 112). Judging by their past actions, these two government agencies are not likely to go much further with their tougher credit policy, especially if the housing boom shows signs of faltering. What they are trying to do is keep the boom from getting out of hand.

• **Not worried**—Right now, the Housing & Home Finance Agency is making field surveys through VA and FHA to determine whether or not there is overbuilding, information that has reached HHFA people so far is not causing any worry. Commissioner Albert Cole has said that in a few places—not in any cities—there seems to be more than enough rental housing. But the market for new homes continues to hold up everywhere, as far as Cole can tell. However, he thinks there may be fewer starts in the second half of 1955 than during the first six months.

White House advisers, however, are worried about the homebuilding boom. And spokesmen for mortgage lenders have been urging caution. Typical of these statements is one by a joint committee of the Life Insurance Association of America and the American Life Convention: "At the current very high rate the residential construction industry is drawing on future demand."

• **Concession**—As a consequence, it's expected that homebuilders won't object this year to legislation giving the President authority to stiffen FHA and VA terms. Housing chief Cole says this power is implicit in the present law, and FHA and VA heads would immediately stiffen terms—as they can do under the present law—if the President asked them to do so.

Going from West to East across the U. S., here are the highlights of ENR's survey of the homebuilding boom:

Los Angeles—The market is excellent here for new homes and for older homes up to the age of about 15 years. For houses older than that, values nose-dive. The trend is to larger homes; new two-bedroom houses are not selling well. Competition is keen, and tract home buyers are now getting more appliances. The general feeling is that the only thing that can blight the boom is lack of money. Says one major builder: "We'll keep on

. . . Housing boom

building like crazy so long as the money holds out." And from a Savings & Loan official: "Four years ago we started to pull in on tracts, thinking they'd reached the end. They didn't—and now we're not predicting when the end will come. We're committed up to the hilt for the next year."

San Francisco—Says one builder: "Houses are of higher grade and larger than last year. Prices are steady, but we have just entered into labor contracts, which might change things."

Seattle—New-home sales are no problem at all here. Older homes are not selling as well as they once were, and prices are down a little.

Salt Lake City—Homebuilding here will probably better last year's record. The home vacancy rate is about 3%, the same as in 1954, but 1% higher than in the 1948-1950 period.

Denver—From one builder: "Demand in the past couple of months was down a little, but it's picking up now. Prices are holding up, but tighter money does cut out a lot of no-money-down purchasers. Looks like things will be pretty good from now on through the summer."

Omaha—Says a real-estate man: "Yesterday at the Real Estate Board meeting some of the men were complaining that they have fewer listings than at any time in their recollection." A builder remarked that "Omaha is good for at least three more good building years."

Dallas—A big part of building here is on VA mortgages. Though FHA has put a freeze on new firm commitments to builders (ENR Apr. 7, p. 19), VA and conventional-mortgage money is available to builders. And individuals can get FHA firm commitments. FHA District Director Ellis Charles says that requests for firm commitments on tract mortgages have swamped his office. He called a halt till he could survey the building and rental situation; he expects the survey to be ready by June 15. On older homes, FHA's "trade-in" program is working well. Prices on older homes are actually rising a little.

St. Louis—Low-priced homes are not selling as well as in past years. But one builder is sold out through next March. And prices on older homes have been declining steadily—about 10% since 1953. Money for no-down-payment mortgages "is drying up fast." The $16,000 price class is doing fine. Builders are sold out for months ahead.

Pittsburgh—Builders here expect clear sailing at least through July or August. After that, tighter credit and the decline in formation of new families may have some effect.

Atlanta—The business boom here is providing a sound basis for increased home construction. Even prices on existing homes, which had been dropping in price from 5% to 10% annually for the past couple of years, are now firming. Local real-estate men attribute this to the more liberal terms of the 1954 Housing Act.

Miami—A good 50% of the new homes here are being sold on "No," "No-no" and "No-no-no" down payment VA mortgages. If credit tightens, local builders, real-estate men, and lenders think it will affect the local new home market pretty drastically.

Philadelphia—The boom here is expected to continue for the rest of the year. As one indication, prices of some older homes in better sections with maximum convenience are higher now than six months ago. The example of Georgetowne (see above) has encouraged other builders who were uncertain whether to go ahead with developments or to play safe.

Boston—Builders here agree that about 10% more homes will be built in New England this year than in 1954. But used homes are definitely dropping in price. Says one observer: "We have arrived at the point where virtually anyone can now move into a home on the market that will meet his needs and pocketbook. I do not know of a similar situation since before World War II. It indicates the possibility of a readjustment of prices downward. With prices of older homes down, new-home prices could follow in the next two years."

High-Tensile Bolts Speed Erection

The use of high-tensile bolts knocked several weeks off the schedule for erection of the steel frame of an 18-story apartment building in New York City. Grand Iron Works, Bronx, N. Y., used 30,000 of the fasteners, supplied by Russell, Burdsall & Ward Bolt and Nut Co., to put up the frame in less than three months. Circumventing a riveter shortage, the erector was able to use two-man bolting crews instead of four-man riveting crews. Bolts were tightened with pneumatic impact wrenches and then checked with torque wrenches (above) to assure a specified minimum tension. Anthony Campagna & Sons is the owner and builder, and Sylvan Bien-Robert L. Bien, the architect. Both are New York City firms.

FARMERS DEMONSTRATE at "grassroots" hearing in Boise, Ida., against the proposal to build a high federal dam at Hell's Canyon on the Snake River.

EMOTIONS RAN HIGH and some strong language was used both by witnesses who backed federal development of the site and by those who argued for private development.

"Grassroots" Hearings Stir Controversy

The Senate Interior Committee last week held "grassroots" hearings on power development of Hell's Canyon that left the canyon reverberating with echoes of public vs. private power debate.

The committee's schedule included four hearings in three days and a flight over the site of the proposed federal dam at Hell's Canyon. Some 130 witnesses testified, and hundreds more filed statements for the record.

Some frustrated would-be witnesses trailed the committee from Boise, Ida., where the hearings began, to Portland, Ore., in an effort to say a few words about whether there should be a high federal dam or three low-head private power dams along the middle reaches of the Snake River.

Emotions ran high at the hearings. Audiences cheered and booed, and testimony often included strong language. The federal high-dam proposal was denounced as a "socialist conspiracy." And one witness called the Idaho Power Co.—the applicant to build three low dams—a "skunk."

Winford Thomson, a 60-year-old farmer of Otis, Ore., suffered a heart attack and died a few minutes after testifying as an opponent of the federal dam proposal that "free enterprise is on trial."

The Republican governors of Idaho, Oregon and Washington all testified against federal development of the site. Gov. Robert E. Smylie of Idaho called the proposal "tragic" and said 75% of the people of Idaho agreed with him.

Gov. Arthur B. Langlie of Washington called the project "a phony." "Building a high head storage project in Hell's Canyon," Gov. Langlie said, "is unwise and the money that would be spent on this project would be a monument to governmental error."

• **John Day Dam urged**—Gov. Paul Patterson of Oregon urged Congress to hold up action on Hell's Canyon and push through funds for John Day Dam on the Columbia River which already has been authorized. He said John Day would cost $320 million compared with $473 million for Hell's Canyon and would have an ultimate generating capacity of 1,530,000 kw compared with 900,000 kw.

At the hearings in Boise and Lewiston in Idaho, a principal argument against a federal dam was that it might result in loss of water rights. Water users along upstream sections of the Snake River were almost unanimous in opposition to federal development of Hell's Canyon.

In Pasco, Wash., and Portland, Ore., witnesses on both sides made it clear they wanted more power in a hurry—whether from a federal dam or a private power company dam. At Pasco, former U.S. Senator Clarence Dill, a Washington Democrat, compared the struggle over Hell's Canyon with efforts to get authorization for Grand Coulee Dam 20 years ago. He said the same arguments advanced in support of three low dams at Hell's Canyon—that they could be built more quickly and cheaply—were used on behalf of the Kettle Falls project that would have flooded the Grand Coulee site.

State Senator Henry Copeland of Washington challenged this statement. He said the two projects could not be compared because Grand Coulee was a multi-purpose project but Hell's Canyon would produce little flood control, no reclamation.

Politics dominated the hearings in Portland. Sen. Henry Dworshak, Idaho Republican, charged that the hearings were used to launch the 1956 re-election campaign of Sen. Wayne Morse, Oregon Independent. Sen. Morse introduced the bill calling for construction of a high dam by the federal government which provided the basis for the hearings.

Tighter Control

Congress looks for a way to exercise control over federal-aid construction

Congress is widening its control over construction projects that are built or aided with federal funds. Two laws last year assigned final approval of lease-purchase contracts for public buildings and agricultural watershed projects to congressional committees. The Senate says it will insist on a similar requirement this year in new legislation for local irrigation projects.

These examples spot a trend. A basic struggle is under way between the legislative and executive branches over control of the purse strings. House and Senate members are convinced that Congress should recapture the broad powers delegated to administrative agencies during the last 20 years.

At present Congress is groping for a workable method of exercising control without hamstringing the big programs that it authorizes. So far it has come up with no better plan than control through its standing committees. That is the method being applied to construction projects.

Recently the House Appropriations Committee recommended that the Banking Committees of the House and the Senate be required to pass on all public housing, slum clearance, urban renewal and college housing projects. The Banking Committees didn't see how they could review some 2,000 loan and grant agreements a year, and the move died in the House.

Where committee approval of projects is in effect, the requirement has had the effect of slowing down construction. Congress last year stipulated in the Lease-Purchase Act that each project be cleared by the Public Works Committees of the two houses. Of 40 projects submitted, only 10 have been cleared for negotiation of design contracts by the General Services Administration and the Post Office Department (ENR March 31, p. 23).

Of the remaining lease-purchase projects, a few have been withdrawn, and 25 still are awaiting final clearance. The two construction agencies hope for speedy action on most of these proposals and on the bigger programs that they will submit for the year ahead.

Congress last year also wrote into the Watershed Protection and Flood Prevention Act a requirement that every project including a dam to impound more than 2,500 acre-ft must be approved by the Agricultural Committees of the two houses. This law set a limit of 5,000 acre-ft on the size of any reservoir that could be built by state or local organizations that receive federal assistance.

No plans have yet been completed for any watershed projects. Nearly 50 projects are under study, and the Soil Conservation Service hopes plans for about 25 will be received before the end of the year. Only then will it be known whether any of these projects require congressional clearance.

This year Congress probably will pass a law that will give federal interest-free loans and grants to local irrigation projects costing up to $5 million. During the last session and again this time the Senate has demanded that the Interior Committees of both houses clear all projects of $200,000 or more. When Congress enacts a law, it undoubtedly will contain such a requirement.

A different sort of committee approval was imposed in the Military Public Works Appropriation Act for the fiscal year 1954. Authorizations and appropriations were going through Congress at the same time that year, and the Appropriations Committees had the job of voting money for projects that weren't yet authorized. Accordingly, the money bill required that the Defense Department reach agreement with the two Appropriations Committees on newly authorized projects before spending money on any of them.

This requirement took a lot of Defense Department time in reviewing projects and working up firm estimates, but it had a salutary effect in saving money. Months rolled by before the Defense Department could submit firm estimates and get committee concurrence on projects for construction.

Projects authorized for construction that year totaled nearly $500 million. In November, the Defense Department submitted about $370 million of them to the committees and obtained clearance the following month on $270 million. About $100 million of projects were returned for further study. Within the next six months, the committees approved two additional blocks of $40 million to $50 million.

Even today, 20 months after the law was passed, a few of the military construction projects remain to be cleared. Some have been held up because of changing defense plans.

Congress did not write a similar requirement in the next year's law, and it has no plans to do so this year. Defense Department proposals and cost estimates are on a much firmer basis now than they were in the program submitted to Congress in 1953.

State Legislatures

Maryland toll highway OK'd; mountain tunnel authorized in Colorado

Maryland's General Assembly concluded its 1955 session by approving plans for the state's first toll-road venture and by sanctioning a $37-million water supply program for Baltimore.

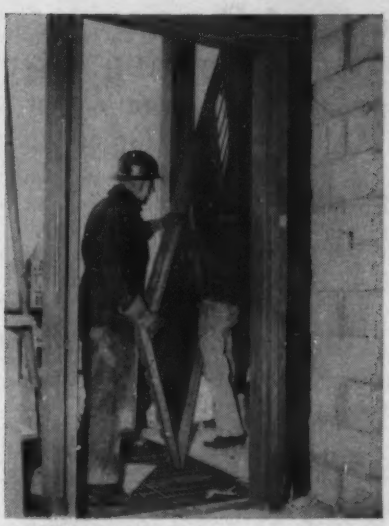
Colorado legislators highlighted their 1955 session by pledging the state's credit to guarantee bonds for the long-discussed toll highway tunnel underneath the Continental Divide. The project, site of which is yet to be determined, would cost an estimated $16 million.

• **Maryland**—The proposed 48-mile Maryland toll road would parallel U. S. Route 40 and run from Baltimore to the Delaware state line near Wilmington. It will be built by the State Roads Commission (ENR Oct. 21, 1954, p. 24). Goal is to have the project built in time for the scheduled 1957 opening of the Baltimore Harbor Tunnel. Toll traffic would use the existing bridge over the Susquehanna River for the next few years but at a later date a toll bridge would be constructed.

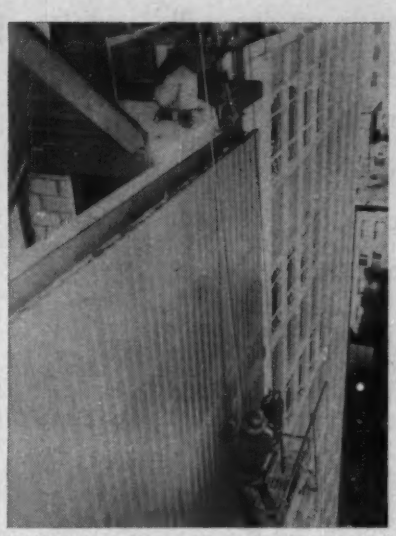
Under the $37 million in loan authority granted Baltimore, the city will embark on a seven-year program of water supply improvements. Key project will be construction of a pipeline to convey water from the Susquehanna River near Conowingo Dam to the city's Montebello filtration plant. The project will include a pumping station to be built at Conowingo (ENR Jan. 13, p. 32).

• **Colorado**—The legislature's support for a proposed $16-million toll highway tunnel underneath the Continental Divide was predicated to some extent on the fact that such a facility is needed to put Colorado into the new federal interstate highway system. Shortly after the legislature adjourned, Gov. Ed C. Johnson appeared before a subcommittee of the Senate Public Works Committee to urge that a route through the northern section of Colorado be included in the interstate highway plans.

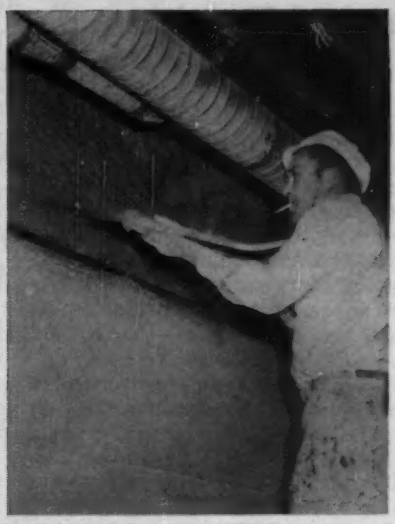
Colorado legislators revised truck taxes and tightened the state's port of entry control system to raise additional road construction revenue. A revised gross ton-mile tax on trucks is calculated to raise revenue from this source from $4 million to $6.5 million annually. From $1 million to $3 million in additional truck gas and use taxes is expected to be gained by stricter port of entry enforcement.



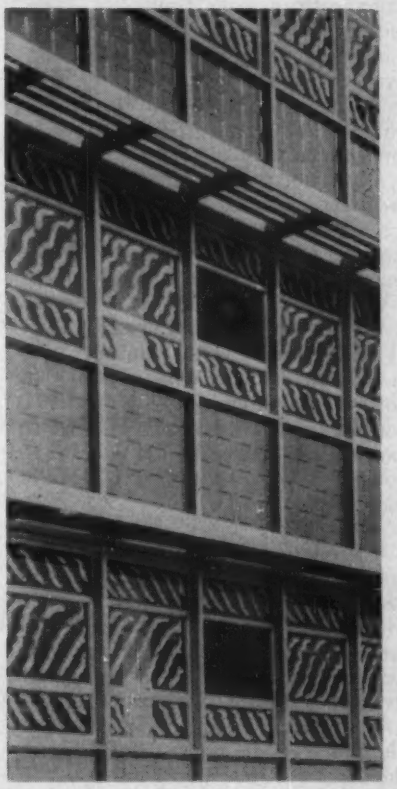
RIBBED PANELS one story high with porcelain-enameled steel exterior were . . .

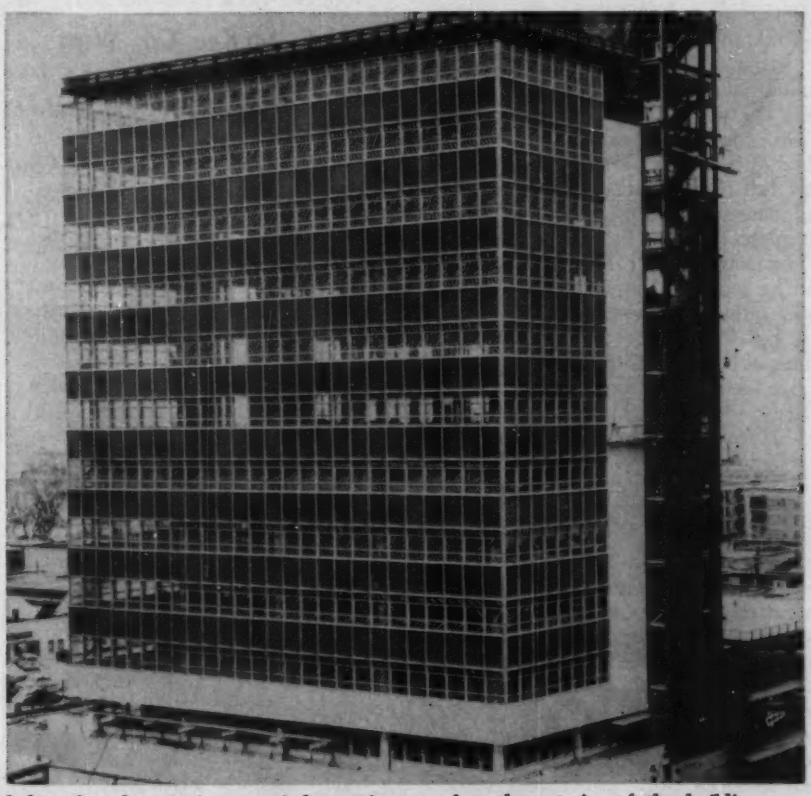


ERECTED in horizontal and vertical strips on building sides. Inside . . .



LIGHTWEIGHT PLASTER was sprayed on paper-backed wire mesh for insulation.





WAFFLE SPANDRELS of porcelain-enameled steel under continuous window strips complete the exterior of the building.

Colored Panels Form Exterior of Bank Building

The First Security Bank Building in Salt Lake City is a colorful example of the use of poreclain-enameled steel panels. The $2.5-million building is framed in rust-colored panels with portions of the facade in off-white and gray. The building will consist of 12 stories and a penthouse.

The major part of the 75,000 sq ft of ceramic-coated steel in the exterior curtain wall consists of shaped, vertical ribbing with a textured ceramic surface. The 510 spandrel panels account for 12,500 sq ft of the material. Squares, stamped into the metal before the pocelain-enamel coating was applied, create a "waffle" effect.

Three of the 4 x 4 ft spandrel panels were bolted to a steel grid to form a 4 x 12 ft assembled unit one-story high. The units were fastened to the main structural steel with angle clips. To insulate the building a paper-backed wire mesh was fastened to the inside of the grids, covering the panel back, and sprayed with lightweight plaster.

The panels were fabricated and erected by Seaporcel Metals, Inc., of Long Island City, N. Y. Architect was Bank Building Corp.; designer, W. Sarmiento; and builder, Utah Construction Co.

Tunnel Troubles

Honolulu tries to decide what to do about tunnel where cave-ins killed 5

With work on the 2,776-ft Wilson Tunnel still at a standstill, the city-county of Honolulu, a contractor and at least three experts were involved in what appeared to be a wild go-round over who and what was responsible, who should finish the job and why parts of the tunnel caved in.

Work on the tunnel—part of a plan to improve highway connections in the area—halted August 14 (ENR Aug. 19, 1954, p. 28) after five workers were killed in a 4,500 cu yd cave-in at a point 2,100 ft from the portal. Work started late in February to build a steel and concrete bulkhead to block off the cave-in area.

These were the latest developments:

- Honolulu's mayor announced that he was in favor of giving the original tunnel contractor a chance to complete the job.
- The county's Board of Supervisors asked the contractor if he would accept full responsibility for the cave-in and damages resulting, if allowed to complete the job.
- The contractor, E. E. Black, Ltd., said he wouldn't accept responsibility and wouldn't pay extra costs.
- A board of three experts studying causes of the cave-in threatened to quit if Black continued on the job.
- Black filed a $1.5-million libel suit against one of the members of the expert team.

• **Another chance?**—Mayor Neal S. Blaisdell, announcing that he favors giving the Black firm another chance to complete the tunnel, said he feared any attempt at canceling the contract would result in long delays. He added that he felt the Black firm should be compelled to carry out the contract for the best interest of the city. Apparently backing the mayor's stand, the Board of Supervisors' letter to Black seemed to ask the contractor to accept blame not only for the latest cave-in but for two previous ones. Not surprisingly, Black refused to do so and, in a letter, blamed the cave-ins on faulty engineering by the city and county. He said damages should be charged to the public agencies.

• **Expert opinion**—In recommending that Black be retained, Mayor Blaisdell went counter to the recommendation of two experts called in by the city to study the accident—Dr. Karl Terzaghi of Harvard University and Dr. Ralph B. Peck of the University of Illinois. They had recommended that the city dismiss Black and complete the tunnel by a drift method.

The mayor's announcement brought an immediate reply from both the contractor and the experts. Dr. Peck promptly wrote a letter to the mayor threatening that he and Dr. Terzaghi and Dr. Leo Casgrande (who is studying whether electro-osmotic drainage can be used to help the situation) would step out if the Black firm were kept.

And Black immediately countered with the $1.5-million damage suit against Dr. Peck, accusing him of malicious and false statements, made "in bad faith and in reckless disregard of the truth and facts."

Just to add further complications, the Columbia Casualty Co., which issued a performance bond on Black's contract, warned that if Black's contract were canceled, the insurance company would cancel its bond.

Robert E. McKee Co. Wins Offutt Air Base Contract

The contract for construction of the Air Force's Strategic Air Command control center at Offutt Air Force Base, near Omaha, Neb., has been awarded to Robert E. McKee Co., Santa Fe, N. M., on a bid of $8.7 million.

Nine builders bid for the job, and all bids were below government estimates which ranged up to $9.5 million on eight alternates.

The control center will include a three-level underground structure and a three-story concrete and masonry building above ground. It will be headquarters for SAC's globe-girdling activities (ENR Feb. 3, p. 27).

Lange Becomes Secretary Of Engineers Joint Council

E. Paul Lange has been appointed secretary of Engineers Joint Council. He succeeds Brig. Gen. Stewart E. Reimel, secretary of the EJC Committee on International Relations, who took over as EJC secretary 15 months ago on a temporary basis.

Lange has been assistant secretary of the organization since May, 1954. He is a native of Seattle, Wash., and a member of the American Institute of Mining and Metallurgical Engineers.

EJC also announced the election of the American Society of Refrigerating Engineers as a constituent society and the election of the American Institute of Industrial Engineers as an associate, the first organization to become an EJC associate.

EJC now has nine constituent societies with a total membership of more than 196,000.

Longest Runway

Airstrip 13,773 ft long goes into operation at Albuquerque's Airport

The longest operational runway in the nation has been completed and put into use at Albuquerque's Municipal Airport which is shared jointly by commercial airlines and Kirtland Air Force Base.

The 13,773-ft runway, rebuilt at a cost of $2.5 million, is exceeded in length only by the 15,000-ft testing runway of Edwards Air Force Base in California.

Designed by the Corps of Engineers, the runway was built by Robert E. McKee of El Paso, Texas and Albuquerque, N. M. The runway is 300 ft wide, has a subgrade of compacted earth ranging 17 to 20 in. in thickness underneath a base course of compacted gravel and stone 8 to 13 in. thick. This is topped with a 4-in. layer of asphalt except for 1,000-ft strips that are located at each end which are built of 15-in. to 19-in.-thick concrete.

A warmup pad at the east end of the new east-west runway is also of concrete. It is large enough to accommodate two heavy bombers simultaneously.

Completion of the new runway gives the airport a total of more than 7½ mi. of runway. Other runways now in use at the base include a 10,000-ft north-south runway 200 ft wide; a northeast-southwest runway 10,000 ft long and 150 ft wide and a 5,700-ft northwest-southeast runway, 150 ft wide.

• **A break for the neighbors**—Householders in southeast Albuquerque were happy about the new runway. Except when strong winds prevent it, maximum use will be made of the east-west strip, thus routing air traffic and its attendant noise away from the city. Airfield officials estimate it will handle from 75% to 80% of the traffic at the field.

The Municipal Airport in Albuquerque is rated one of the 10 busiest in the nation. During the period of February 1954, to February this year, more than 200,000 take-offs and landings were logged.

Besides military craft, the airport is used by Trans World Airlines, Continental Air Lines (which recently merged with Pioneer Air Lines) and Frontier Air Lines.

The airport is also one of the nation's highest. The new runway ranges in elevation from 5,309 ft at its western end to 5,325 ft at its eastern terminus.

AASHO Test Road

States, federal agencies settle arrangements for Illinois testing project

Secretary of Commerce Sinclair Weeks announced last week that the Bureau of Public Roads, the Highway Research Board and other participants have completed arrangements for construction of the $12-million road test project of the American Association of State Highway Officials (ENR Sept. 23, 1954, p. 23).

Construction of the test project probably will begin next year. Illinois is buying the land for the four test loops, each 1¼-mi long.

The planned tests will seek to establish what traffic loadings present highways and bridges can carry, how designs can be improved and what additional highway costs may be justified to permit use of heavier trucks in the future.

Testing may run over a period of about seven years. It is likely that the period of testing under controlled axle loads will be about two years.

• **Interim data**—Engineers won't have to wait for the final report to obtain useful information from the project. High-speed electronic computers will analyze test data as the research work goes along. These prompt analyses will make possible interim findings of significant value to the expanded highway construction that lies ahead. The information is to be applied, for example, in projected improvement of the 40,000-mi interstate system.

Ralph R. Bartelsmeyer, chief highway engineer of Illinois, has announced that 47 states and other participants, including industry groups, have agreed to contribute three-fourths of the cost of the new test project. Illinois will underwrite the $3-million cost of building the six-mile-long load-testing highway—on a relocation of U. S. 6 between La Salle and Ottawa, 100 mi southwest of Chicago. The state will get the benefit of federal-aid matching funds to the extent of the salvage value of the highway at the conclusion of the test.

Allocation of other costs is roughly $4 million from the states, $1.7 million from BPR, $1.3 million from the automotive industry and the remainder from others, including the U. S. Army and petroleum producers.

• **Concrete and bituminous pavements**—The tests will be made in a four-lane divided highway with turnarounds connecting the divided roadways in loops about 7,600 ft long. Each loop will have two test lanes with concrete on one and bituminous pavement on the other. The lanes will be divided into sections of varying pavement thickness to represent existing roads and possible future designs. Sixteen bridges of varied design and materials are included in the project.

Single-axle and tandem-axle loadings will be used in the tests. Three-axle and five-axle truck-trailer combinations will operate on the various test loops, six vehicles to each lane. Proposed single-axle loads range from 10,000 to 30,000 lb and tandem-axle loads from 20,000 to 50,000 lb.

The site measures up to predetermined requirements as to climate, precipitation, frost penetration and soil conditions. Seasonal results will apply to conditions throughout the country.

Following the scheduled testing under controlled loads, a post-test phase will measure the effects of moving some of the heaviest military vehicles over the same highway. This investigation will develop data on design needs for heavy military loads.

A Highway Research Board advisory committee will administer the project through a project manager to be selected with AASHO concurrence. The HRB committee will include wide representation of all the participants, both public and private.

News Briefs . . .

Tunnel Contract

Pacific Gas and Electric Co. has awarded the contract for driving a 24-ft dia, 6¾-mi tunnel at its $35-million Poe hydroelectric project on the Feather River in northern California to Utah Construction Co. and Bates and Rogers Construction Corp. Construction of the Poe powerhouse will start in the summer of 1956 and will be followed by work on a 60-ft-high diversion dam immediately downstream from the tunnel intake. These jobs will be covered by separate contracts.

No Jurisdiction

A Federal District Court in Philadelphia has dismissed a suit against Levitt and Sons, Inc., and four government officials to force the sale of homes in Levittown, Pa., to Negroes. The four government officials were the national directors of FHA and VA in Washington and the local heads of those agencies. The suit was dismissed on the grounds that the federal court did not have jurisdiction. The court said action in Pennsylvania courts was not affected.

Guard Rails 'Boy-proof' Expressway Bridge

Aluminum-tubed guard rails arch over the sidewalks of this Baltimore-Washington Expressway overpass to protect the Pennsylvania Railroad's electric tracks beneath from pint-sized tin-can throwers. The rails are 8 ft high and extend 3 ft over the sidewalks. District of Columbia bridge engineers made the structural design for the $800,000 bridge based on an idea of Alan B. Mills, Jr., a Washington engineer, who was consultant to the District government for the project.

What's your
GATE VALVE
MORTALITY

on installations requiring frequent opening and closing?

REPLACE *them*
with **G-A**
FLOWTROL
VALVES

✓ *Use the Angle Body and Save the Price of an Elbow Fitting*

✓ *Built to Last a Lifetime*

✓ *Operates with Finger Pressure*

HERE'S PROOF:
One of America's large railroads had a 6" gate valve installation that operated on the average of 55 times a day. In addition to frequent repairs, this valve had to be entirely replaced every 3 months.

In the Fall of 1947, this valve was replaced with a 6" G-A Flowtrol Valve. Now—more than 7 years later—this valve is still operating perfectly and not one parts replacement has been made!

Want to know more about this unique valve? Write for Bulletin W-8A today.

GOLDEN ANDERSON
Valve Specialty Company
1208 RIDGE AVE., PITTSBURGH 33, PA.
Designers and Manufacturers of
VALVES FOR AUTOMATION

CITY BY CITY

Problem in Relocation

Philadelphia—The relocation of families has become a major bottleneck in enforcement of Philadelphia's new housing code.

Hundreds of families will be displaced by Operation Hawthorne, which seeks to establish minimum housing standards through strict enforcement of the new code. Most initial evictions will stem from overcrowding and lack of bathtubs and toilets.

A few weeks ago—when the program was moving into high gear—the shortage of housing inspectors was considered alarming. But six men from the city's Department of Licenses and Inspections took only six weeks to turn up 293 families who must move into new homes. Housing officials say it will take from six months to a year to get these families relocated. And no code enforcement will be permitted in these cases until places are turned up for those who must move.

The Redevelopment Authority's present four-man relocation staff can't handle families now being unearthed by the inspectors. And the City Council already has been asked to increase appropriations so additional personnel can be hired for the relocation office.

A number of other factors are adding to the relocation problem.

For one thing, the 293 families represent only those who now live in over-crowded buildings located in a small 39-block area south of midtown Philadelphia. But within the area are hundreds of dwelling structures requiring bathrooms and heating systems. If landlords elect to close the buildings rather than go to the expense of complying with the code, hundreds of other families will find themselves shopping in the already tight market for low-rent housing.

In addition, there are more than 2,000 families who will be forced to move this year because slum clearance and public improvement programs will claim their homes.

The relocation process in itself is a time-consuming one. Each family to be relocated is interviewed by a social worker and dwelling inspector. Housing requirements are determined. Then two units must be located that meet code standards at the proper rent level. These are offered to the family to make a choice. Only when the family turns down both can they be evicted by the landlord.

Finding acceptable units promises another king-size headache. Public housing in Housing Authority developments is expected to provide the bulk of needed units. But this space already is almost completely filled. Suitable vacant units don't exist in any quantity.

No Right to the Revenue

Long Beach, Calif.—The California Supreme Court has ruled that Long Beach has no right to tap revenues from offshore oil and gas for a $40-million municipal improvement program.

The court held that the legislature violated the constitution in 1951 when it granted Long Beach permission to appropriate 50% of future offshore oil revenues, all revenues from dry gas, and one-half of an accumulated $75-million cash surplus.

Long Beach has held title to tidelands since 1911 under a state grant that specified revenues should be used for harbor and navigation improvements for benefit of the entire state. After oil was discovered in the tidelands, income grew to $24 million annually, and the legislature released part of the funds to the city. Long Beach interpreted this as meaning that money could be used freely.

Taxpayers' Complaint

Green Bay, Wis.—Two taxpayers have brought suit in circuit court to void a city contract for construction of a 30-mi water supply pipeline to Lake Michigan—and to void a $5.7-million bond issue for the job.

Laying of the reinforced concrete pipe already has started. And Chapel & Amundson, the Green Bay firm holding a $2.9-million contract for that phase of the job, says it will continue the work. The bonds were sold last January to Union Securities Corp. of New York City.

$16-Million Sewer Scheme

Indianapolis—Indianapolis Board of Sanitary Commissioners is getting machinery in motion for authorizing a $16-million program to complete expansion of the city's interceptor sewers.

The plan—one of the largest construction jobs in Indianapolis' history—includes eight major projects. Extensions will be built to important new fringe areas. In addition, new industrial sites will be connected to the main system.

Interceptor extension surveys, now being conducted by eight different en-

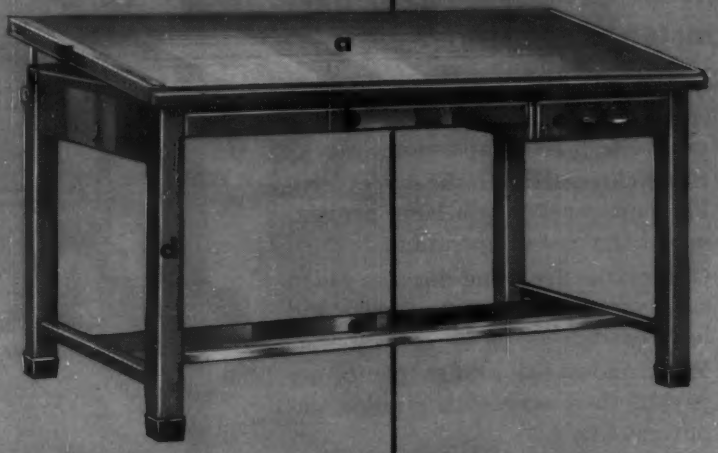
(*City by City continued on page 32*)

How Hamilton helps get the work done

Steelwood drafting tables with lifetime efficiency built in!

The Steelwood—latest in design and construction among four-post tables. Heavy-gauge steel base, and steel legs welded to steel frame, assure great strength and permanent rigidity. Drawers are wood for quiet operation; and adjustable drawing surface is expertly seasoned key stock basswood, carefully machined and dressed. Steel end cleats preserve a permanently true edge.

Shown is Table No. 1802. Other equally good-looking lifetime Steelwood tables are available with varying top sizes, split tops, filing drawers, etc. Catalog No. 14 illustrates and describes the complete Hamilton line of tables, filing units, and accessories. Write for your free copy today.



- a select basswood drawing surface
- b long drawer for reference material
- c tool drawer with lock
- d heavy-gauge steel legs
- e steel foot-rest with scuff plate
- f easy sliding leg-shoes
- g zinc-plated steel end cleats
- h concealed raising device

. . . also by Hamilton

Four-post wood tables

Famous Auto-Shift tables

Steel *UnitSystem* filing units

HAMILTON MANUFACTURING COMPANY
Two Rivers 4, Wisconsin

Hamilton
DRAFTING EQUIPMENT

How to Sewage System

By-products can help pay part of sewage system expansion costs. Here's how...

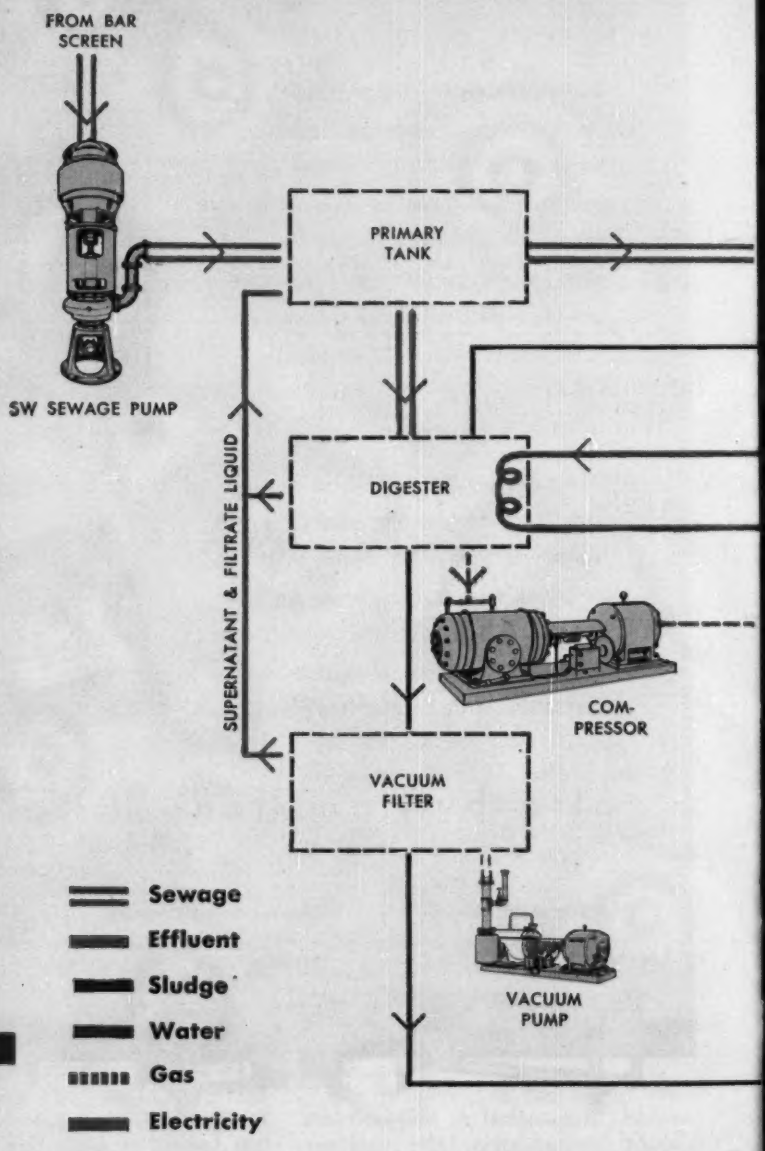
The flow sheet at the right shows two modern treatment methods that use by-products to help meet expansion costs.

- Some cities, through the sale of fertilizer, are recovering a large percentage of the cost of operation.
- Other cities are using digester gas to supply most of the sewage power and light needs.
- Many industrial sewage plants are paying their way with similar improvements.
- The increasing use of home garbage disposal units is aiding many municipal plants to increase their by-product value.

Get Help on Your Problem

Allis-Chalmers, builders of the world's widest range of public works equipment, can help you analyze your problem and select the proper equipment for your particular needs. For complete information on any of the Allis-Chalmers items shown here . . . call your nearby Allis-Chalmers District Office or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-4634

Low-Head is an Allis-Chalmers trademark.

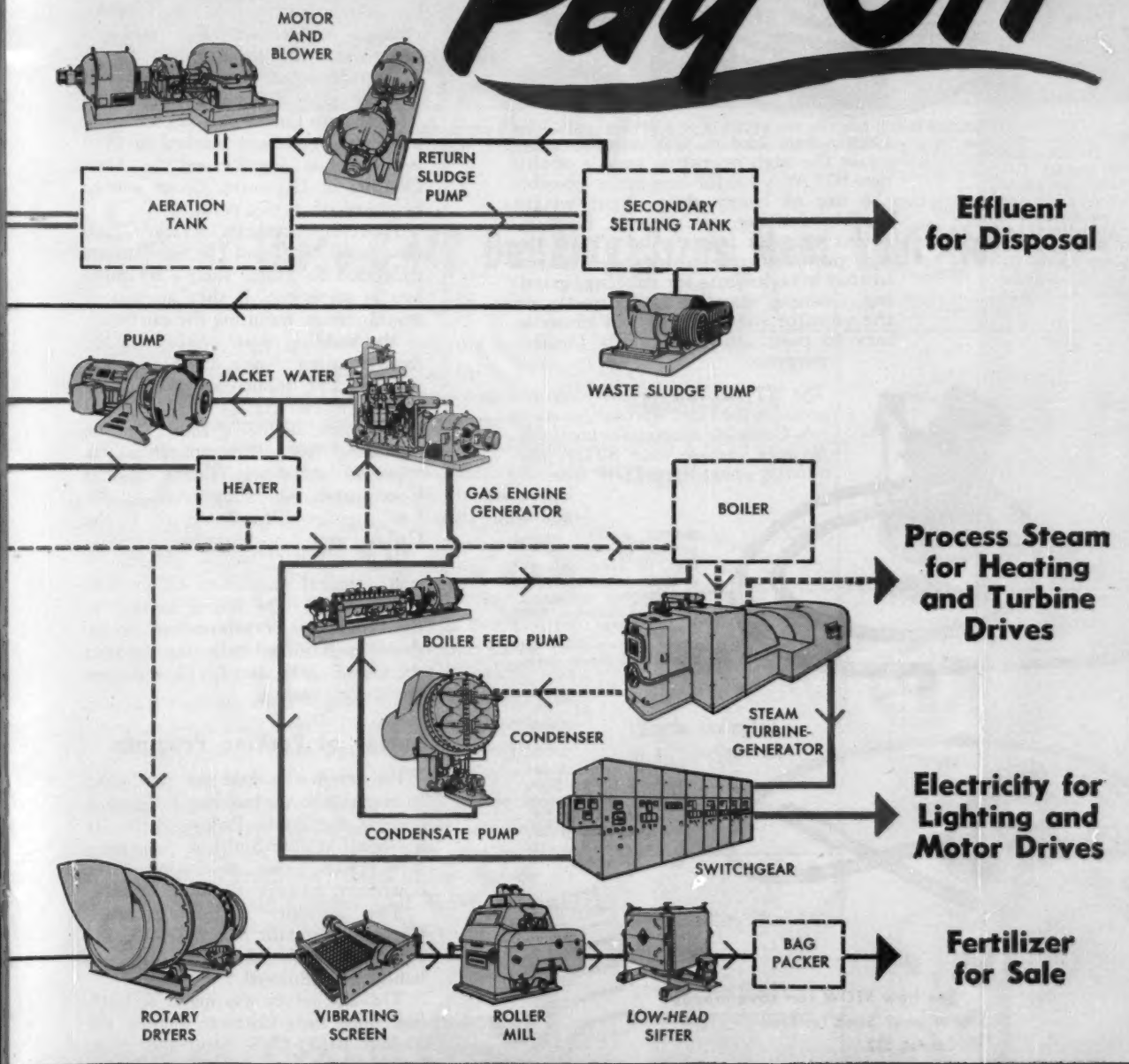


All equipment shown in solid line built by Allis-Chalmers.

A-C ALLIS-CHALMERS

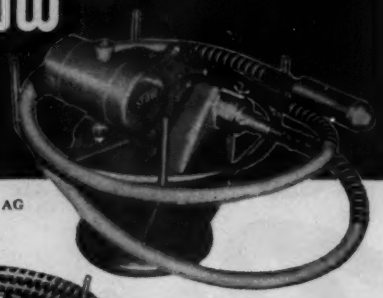
ALLIS-

make Expansion *Pay Off*

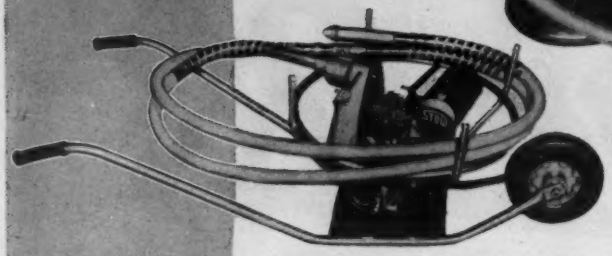


CHALMERS

New performance features built into STOW CONCRETE VIBRATORS



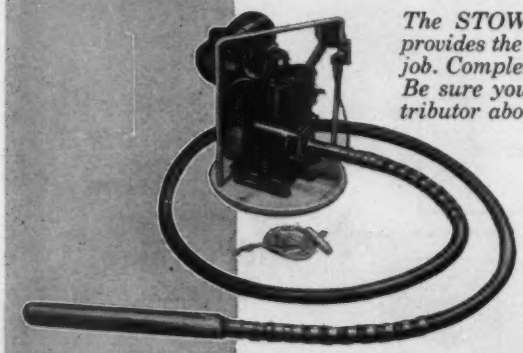
MODEL AG



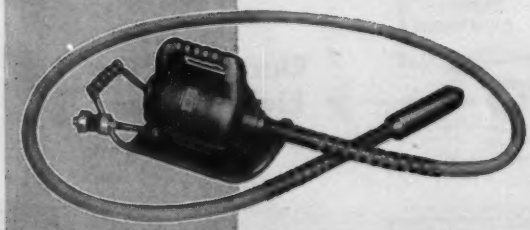
SHOWN: MODEL BGW. This is the standard STOW model BG vibrator, mounted on wheelbarrow for easy maneuverability. Model BG & BGW feature 2 HP 4 cycle, air-cooled engine; ball-bearing eccentric belt tensioner.

Contractors like STOW vibrators because the high operating speeds of this new STOW vibrator line make possible the use of heavy duty, light weight flexible shafting, and lighter, more efficient vibrator heads. And STOW design provides convenient speed control so that attachments for rubbing, grinding, cleaning may be used directly on the vibrator shafts, making it unnecessary to purchase extra shafts for this purpose.

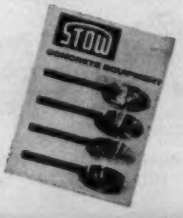
The STOW line is complete . . . provides the right vibrator for every job. Complete accessories available. Be sure you see your STOW distributor about the STOW line!



MODEL J—The lowest priced vibrator in the STOW line. Slower speed means longer, trouble-free operation. Model J features 3600 (max.) VPM, 2 HP 4 cycle air-cooled engine, and direct drive.



MODEL BU—Features 2 HP at 9000 VPM, operates on 115 volts AC or DC with splash-proof, high speed ball-bearing motor.



See how STOW can save money for you! Send for Free Catalog 552.

STOW MANUFACTURING CO.
19 Shear Street, Binghamton, N. Y.

gineering firms, are nearly finished. Contracts are expected to be awarded within the next six months, and the program should be completed in two to three years.

Freeway Roadblock

Los Angeles—Disagreement between state and city agencies over rail-to-bus conversion on certain lines of the Los Angeles Transit Lines has eliminated a portion of a 1.4-mi., $8.8-million contract on Los Angeles' Harbor Freeway.

The new portion was scheduled for opening in October. But until the dispute is settled, the freeway terminus will remain where it now is.

Involved is the intersection of the freeway with Grand Ave. According to a freeway agreement reached in 1950 between Los Angeles and the State Division of Highways, Grand was to be closed off at this point.

However, streetcars of three lines now travel on Grand. If the lines are converted to buses, there's no problem in rerouting. If they are not, it would require rerouting the car tracks, or the building of an overpass for the freeway rather than a fill closure.

The LATL applied last year for permission to convert from rail to buses on six lines, including those running on Grand Ave. The application was approved by the State Public Utilities Commission, but disapproved by the Los Angeles City Board of Public Utilities and Transportation.

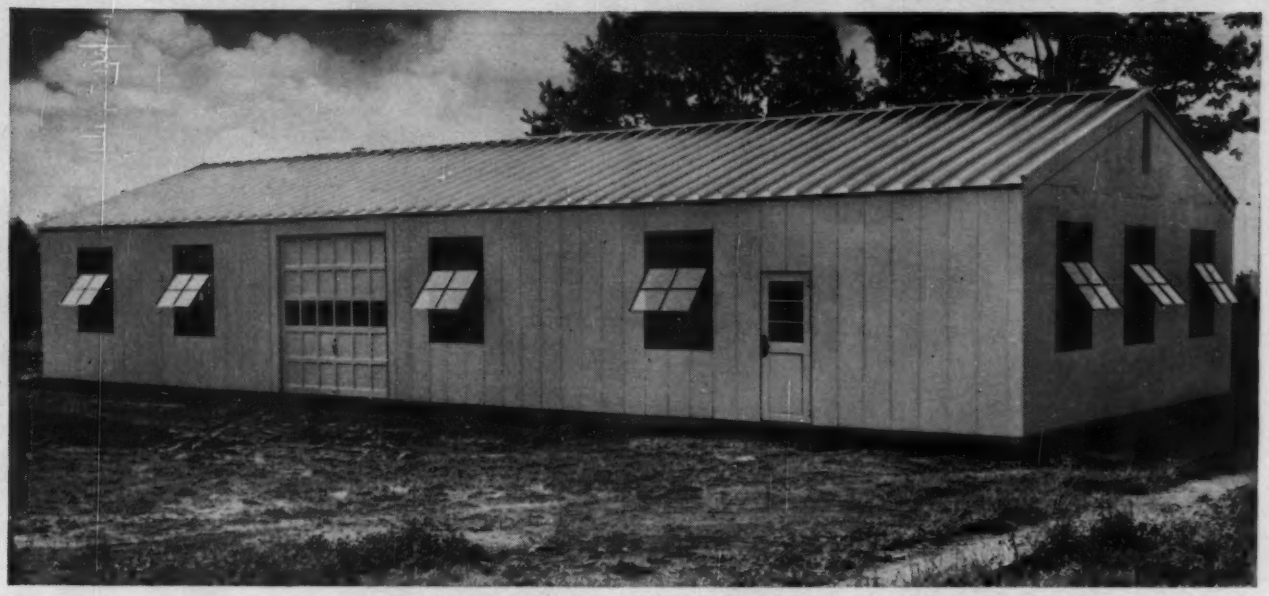
If the SPUC makes its conversion approval mandatory rather than permissive—it now has a motion to that effect under submission—its authority will undoubtedly win out over the City Board's, and LATL will carry out the conversion.

Survey of Parking Progress

Pittsburgh—To find out how close to completion its building program is coming, the Public Parking Authority has hired Wilbur Smith & Associates, New Haven, Conn., to re-appraise the downtown parking situation.

The authority is now operating three garages with facilities for 2,355 autos, and is building two others to handle an additional 1,322 cars.

The last survey was made in 1945. But since then Gateway Center, the Mellon Bank, U.S. Steel and Alcoa buildings have gone up. Future additions to the Gateway development are expected to include a bank, state office building, Bell Telephone Co. office building and a privately built parking garage.



This Armco Steel Building, used by a metal plating and polishing firm of Broomall, Pennsylvania, illustrates some of the possible arrangements of doors and windows. Building is 28′ wide, 72′ long and 10′ high.

Which of These 3,442 Building Sizes Meet Your Needs?

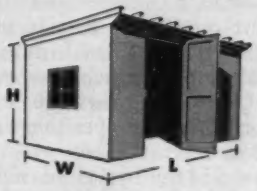
By actual count, there are 3,442 different standard sizes of clear-span Armco Steel Buildings up to 40 feet wide and 200 feet long. But the total number of standard Armco Buildings available is even more. One reason is that building lengths are practically unlimited. Another is that Multiple-Span Armco Buildings provide a structure of almost any width or length. From this selection it is *easy* to choose a steel building that will *exactly* meet your size requirements.

A feature of these Armco Buildings is the STEELOX panel construction. Each panel provides both structural support and a smooth exterior. Building assembly is a simple matter of fitting these interlocking panels together. They are used on roofs and sidewalls, and eliminate framing, sheathing and rafters. Erection goes fast, even for a small crew without previous experience.

You can specify these buildings with confidence. Armco has manufactured steel buildings for more than a quarter of a century. Thousands are in use today, all over the country. And wherever you are, there is an Armco plant and sales office near you for easy ordering and fast delivery. Write us for data on the size of building that interests you. Armco Drainage & Metal Products, Inc., 5155 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation.

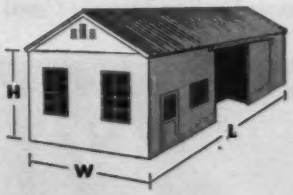
Armco Steel BUILDINGS

Height: 6′-8″ to 10′
Width: 4′ to 12′
Length: 5′-4″ to 24′



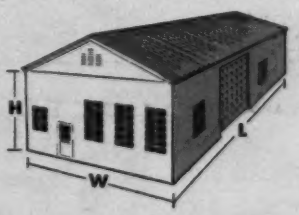
SERIES S—TYPE 1

Height: 8′ to 20′
Width: 8′ to 28′
Length: Unlimited, in 16″ increments



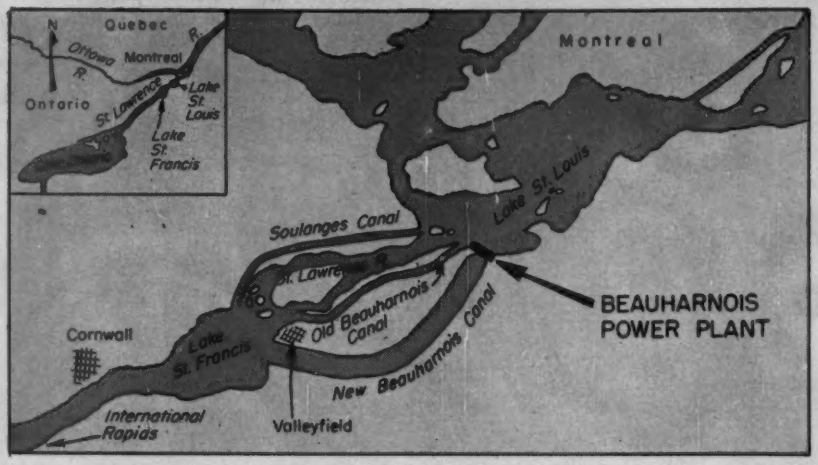
SERIES S—TYPE 2

Height: 10′ to 20′
Width: 40′
Length: Multiples of 20′ or 32′, minimum 40′

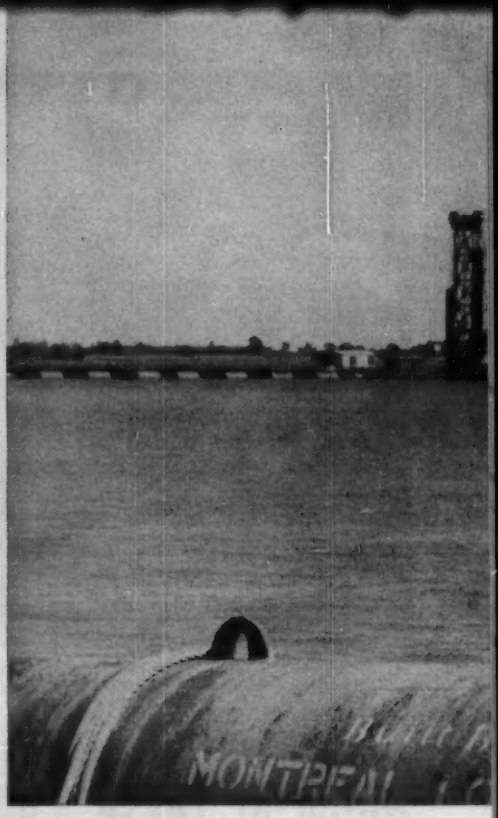


SERIES S—TYPE 3

Note: All widths are clear-span. Lengths cannot be less than width.



BY-PASSING SOULANGES RAPIDS Beauharnois Canal already makes use of the 83-ft drop between Lake St. Francis and Lake St. Louis for an installed 1,500,000 hp. Ten more years of dredging will accommodate Seaway lock alongside Beauharnois Power Plant which in the meantime will be extended to house some 2,200,000 hp.



Beauharnois Canal, begun in 1922 and now a bigger dredging operation than ever, is . . .

Quebec's Head Start on St. Lawrence Seaway

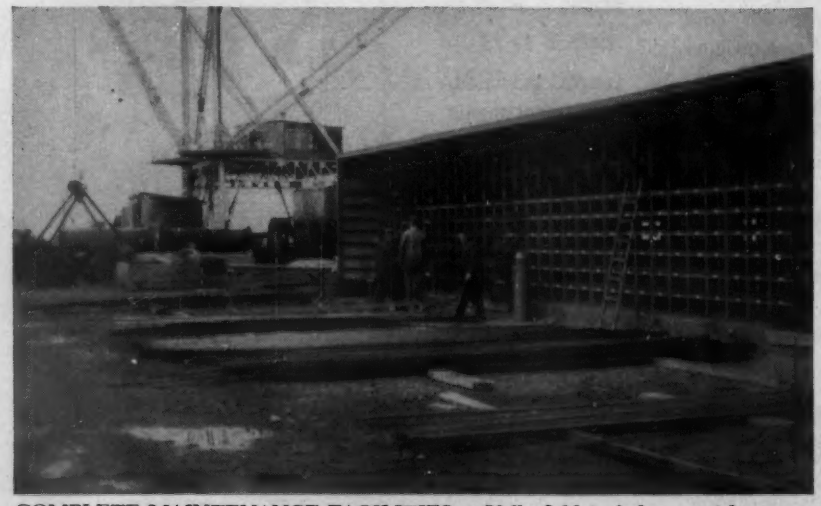
With St. Lawrence canal work soon to start on the U. S. side of International Rapids, Beauharnois Canal downstream in Quebec is worth a look. Started 25 years ago, it is still a major dredging operation far from finished.

This 15½-mi bypass of rapids between Lake St. Francis and Lake St. Louis has been developed over 22 full years of dredging until today 160 million cu yd of material have been excavated. Beauharnois Canal now can carry at times the entire usable flow of the St. Lawrence to turbines rated at 1,500,000 hp in the great and still growing Beauharnois powerhouse.

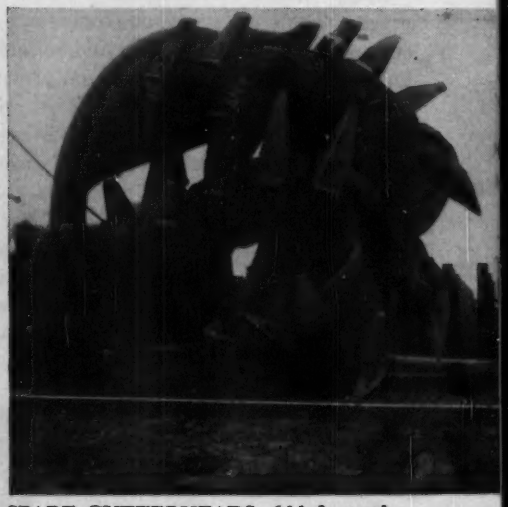
Current work, scheduled to take 10 more years, involves excavating another 60,000,000 cu yd which must be removed to bring the canal to its ultimate, design section.

When completed, the waterway will feed turbines rated at 2,200,000-hp capacity. Beauharnois powerhouse, already housing 28 units, will eventually grow to 3,300 ft in length. Along with future turbines (designated Plant No. 3) will be built the navigation lock to put Beauharnois Canal into the St. Lawrence Seaway. River traffic now passes through the 14-ft

After an eight-month season of dredging



COMPLETE MAINTENANCE FACILITIES at Valleyfield include materials storage on 500-ft long dock. Traveling gantry with two 100-ft derricks of 15-ton capacity handle materials. Shop facilities make possible rebuilding of practically anything afloat in big dredging operation; 35 welders keep busy around the clock all year on maintenance work.



SPARE CUTTERHEADS—6-blade tooth cutter shown above has not heavy enough frame for Beauharnois work. Also, its front teeth do too much of the work. In

deep Soulanges Canal north of the River at this second great rapids above Montreal. Nearer Montreal, Lachine Rapids will also have to be bypassed in completion of the Seaway.

Beauharnois Plant No. 3 has not yet been scheduled for construction; nor has the Seaway lock there. But dredging of the canal goes on.

Dredging is a continuous project, with three big dredges at work eight months of the year. There are two suction dredges owned by Quebec Hydro-Electric Commission, plus a dipper dredge working under cost-plus-fee contract. For four winter months, dredging stops and the job becomes one of maintaining the three dredges, 9,000 ft of floating pipe, 43 pieces of floating equipment (scows, etc.), plus land-based equipment. The entire operation employs 325 men in winter, over 600 in summer.

• **World's most powerful**—The larger of the two suction dredges on the job is the $5 million "Hydro-Quebec," called the world's most powerful cutter-head dredge. Commissioned in 1952, the 42-in. dredge has been at work on the channel for only one full season of operation. Working in "boulder-clay," a glacial clay full of boulders, it has been excavating at the rate of 2,000,000 to 3,000,000 cu yd per eight-month year. Its owners say it could do 15,000,000 cu yd in boulderless marine clay—twice the present rate of the second (26-in.) suction dredge on the canal, the R. O. Sweezy.

• **A three-dredge operation**—The three dredges on the canal work in somewhat of a team operation, though they may be miles apart at any given time.

The 26-in. suction dredge, which just completed its 22nd year of operation on Beauharnois Canal, takes out the stiff marine clay. Since the day in 1930 when it moved into a pilot cut dug by tower excavators and 4-yd draglines, it has handled well over 100,000,000 cu yd of the clay. Operating year in and year out except for 1936-39 it has handled 50,000 cu yd per day, 5½ days per week, 8 months per year—averaging close to 5,000,000 cu yd per year for 22 years.

Last year this veteran, electric-powered dredge moved over 7,500,000 cu yd, close to the million-yard-a-month target now set for it.

When this smaller of the job's suction dredges has removed the marine clay, its big sister, Hydro-Quebec, goes to work on the underlying boulder-clay. With its total of 12,180 hp churning up the bottom and pumping it at 50,000-gpm to a 36-in. discharge line, the big dredge moves 15,000 cu yd per day. The 8,000-hp suction pump has a 100-in. impeller.

Quebec Hydro-Electric Commission

Four months of maintenance . . .

newer design used, teeth all bear evenly on mass to be cut. Second cutter is a similar spare for the "Hydro Quebec." Third is cutter head for the smaller R. O.

Sweezy suction dredge. It is one of two seven-blade, closed end cutters with replaceable manganese cutting edges which have alternated on the work since 1931.

PROTECTED PIPE Antoine Rousseau looks at manganese strips inside floating dredge line. Replaceable strips extend life of pipe by protecting it from abrasion.

the *New*

ROOSHOR

EXTENSION TYPE

For every shoring job . . . regardless of height . . . the new ROOSHOR, Extension Type, provides the fast, efficient and economical method. This new ROOSHOR may be used as a flat-head shore, or, by merely inserting any length S4S 4 x 4, as an extension shore or, as a male-head shore . . . one type shore does all of this. Wooden upper members make it easy to nail bracing when needed. Available in two sizes giving adjustments from 6' to 10'-6" or 8' to 14.'

STANDARD ROOSHOR

Instantly adjustable to accurate height—without pins or screws to cause needless delays. Three sizes, giving adjustment from 8' to 14', 7' to 13' and 5' to 9'.

ROOS COLUMN CLAMPS

The job-proven answer to column forming accuracy . . . two identical hinged units . . . no wrong way to put them on . . . no loose parts. Rooshors and Roos Column Clamps are available for rental with purchase option from warehouse stocks in principal cities. Write for Bulletin 455.

ENR

BAKER-ROOS, INC.
P. O. Box 892, Indianapolis 6, Indiana.
Please rush additional information on Rooshors and Roos Column Clamps without any obligation.

Name_____

Company_____

Address_____

City_____ State_____

DIPPER DREDGE digs almost anything, including some ledge rock. Its 8-cu yd bucket empties into crushing plant floating alongside. Crushed rock is pumped ashore.

"NOSE HANGAR" on repair scow is used for changing teeth and repairing pipeline.

(whose nickname the dredge bears) says that the Hydro-Quebec has not yet hit its stride. Naturally, a mechanism of its size, complexity and general nature cannot be expected to operate 100% of working hours; there must be down time. But, whereas it was actually excavating only 51% of the time in its first year of use, it hit 65% last year and is expected to reach 75% next year. Eighty percent is thought to be optimum by Hydro-Quebec engineers.

• **Rugged tool for worst digging**—Where clay and boulder-clay have been removed and the channel is still not down to design depth (27 ft in the navigable portion), the 8-cu yd dipper dredge Manseau moves in to dig out boulders and even scrape out pieces of ledge rock (sandstone, limestone). This rugged old excavator is operated for Hydro-Quebec by its owner, Marine Industries, Ltd., Montreal.

As the big dipper dredge lifts its bucket from the canal, it swings to empty into a disposal scow alongside. It puts about 2,500 cu yd of rock per day into the scow's receiving hopper. From this hopper, the pieces larger than 7 in. are roller-conveyed into the scow's crusher plant. Crushed rock is readily pumped through the dredging plant's 12 in. disposal line by its 1,800-hp pump.

Digging in rock and boulders, as at present, the dipper dredge excavates about half-a-million yards in an 8-month year. It used to dig a million yards of boulder clay each season before the Hydro-Quebec came along with its capacity to triple that rate.

Product of the dipper dredge and its attendant crushing plant is actually washed, crushed stone. Discharged into fill area on the south side of the canal, practically all of it has been

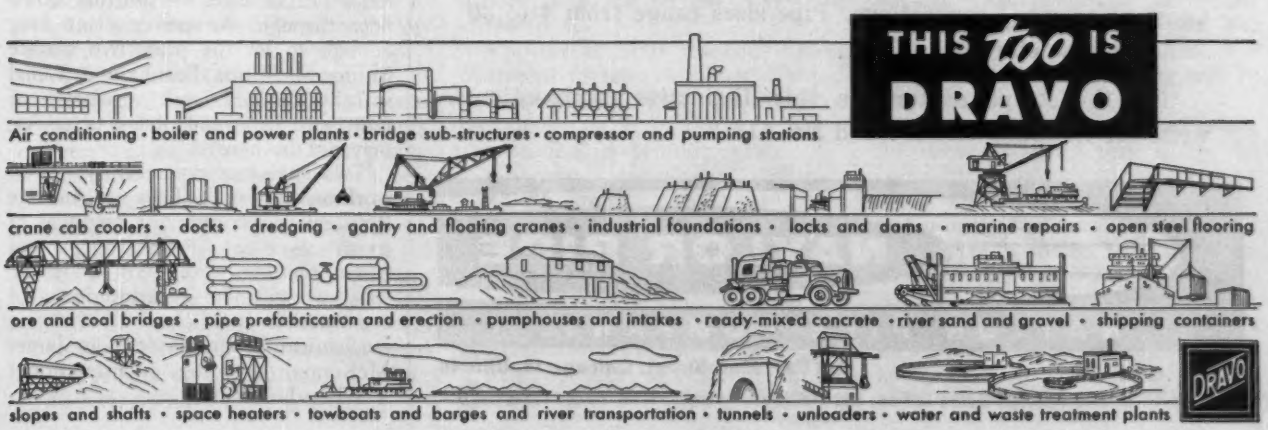
THIS INSTALLATION TREATS STEEL MILL WASTE WATER

The largest industrial waste treatment operation in the country is now at work in the new Fairless Works of United States Steel Corporation at Fairless Hills, Pennsylvania. It consists of three Walker Plants, which were supplied and installed by Dravo to clean and purify waste water.

One of these plants handles water from the blast furnaces containing flue dust. In addition to cleaning the water, the plant recovers a substantial amount of iron from this dust for re-use by the furnaces. Another plant removes such waste as acids, caustics, oils and greases from waste water received from the sheet and tin mill. The third plant handles waste water from the hot strip and tube mills.

All of these plants return water to the Delaware River cleaner than the river itself.

This is just one of the many ways in which Dravo has been serving business and industry in a variety of engineering fields for more than 60 years. Dravo considers customer satisfaction an essential factor in all its products and services. DRAVO CORPORATION, PITTSBURGH 25, PENNA.


THIS too IS
DRAVO
Air conditioning • boiler and power plants • bridge sub-structures • compressor and pumping stations
crane cab coolers • docks • dredging • gantry and floating cranes • industrial foundations • locks and dams • marine repairs • open steel flooring
ore and coal bridges • pipe prefabrication and erection • pumphouses and intakes • ready-mixed concrete • river sand and gravel • shipping containers
slopes and shafts • space heaters • towboats and barges and river transportation • tunnels • unloaders • water and waste treatment plants
DRAVO

KING SIZE PERFORMANCE

with NAYLOR *Lightweight Pipe*

It's no trick to get king-size performance from air and water lines in construction service when you use Naylor large diameter lightweight pipe.

Naylor is the one lightweight pipe built to handle jobs normally requiring heavier wall pipe. That's because of Naylor's exclusive lockseamed, spiralwelded structure which creates a pipe that is recognized for its greater strength and safety.

Its light weight makes Naylor pipe easier to handle and install, particularly with the one-piece Naylor Wedge-Lock Coupling to speed connections. Pipe sizes range from 4 to 30 inches in diameter.

For the complete story on this distinctive combination, write for Bulletins No. 507 and No. 513.

NAYLOR PIPE

NAYLOR PIPE COMPANY

1248 East 92nd Street, Chicago 19, Illinois

Eastern U. S. and Foreign Sales Office: 350 Madison Avenue, New York 17, New York

trucked away by provincial highway builders and others for use as a building material.

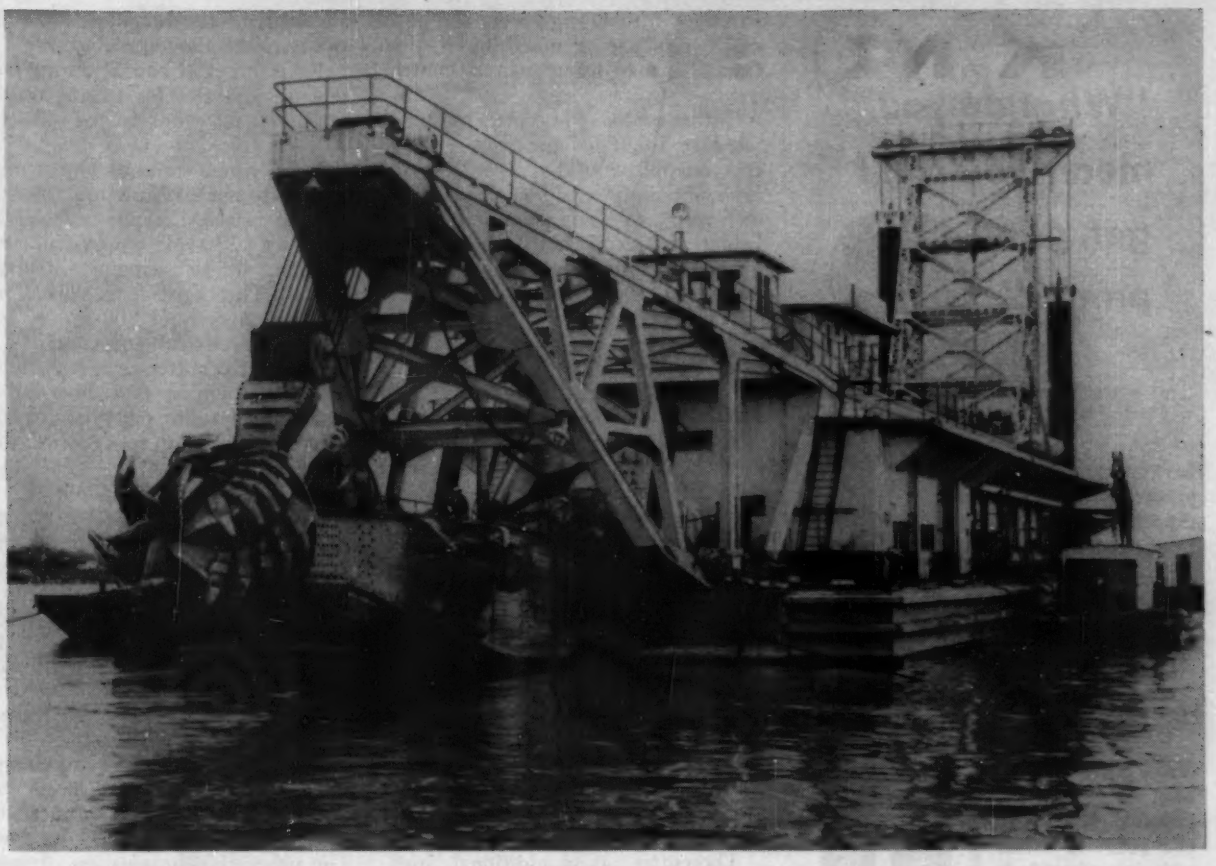
• **Costs per cu yd dredged**—With $8-million worth of dredges afloat totaling 17,000 hp, Hydro-Quebec is cost conscious and in a position to collect accurate comparative costs. They figure that marine clay is excavated by the 26-in. suction dredge at 8¢ per cu yd; the more powerful Hydro-Quebec dredges boulder-clay (easily passing boulders up to 18-in. size) for 80¢ per cu yd; rock dug, crushed and pumped ashore by the dipper dredging plant costs $2.00 per cu yd. This is for dredge line discharges varying from 200 ft to 2 miles.

Disposal areas either side of the channel, and the dikes long-since built to enclose them, were described fully in ENR back in December, 1930 (Vol. p. 918). Canal width is 3,380 ft crest to crest of dikes. The dikes were put originally in their final location even though the original channel was but 600 ft wide, as required for navigation.

• **Depth and slope are important**—Navigation interests, now of such immediate concern, were assured a quarter century ago when the Canadian Government licensed the private Beauharnois Power Corp. to build the Beauharnois Canal. (Beauharnois plant was expropriated by 1944 legislation which put the Province of Quebec in the power business; Beauharnois Light, Heat & Power is now administered by the Quebec Hydro-Electric Commission.)

Slope of the canal is designed to be 1:23,000 ft. This makes possible nearly full use of the 83-ft difference in elevation between the two St. Lawrence lakes it connects. Also, this slope and the design cross section will keep velocity of flow below 2¼ ft per second. Velocity is a factor in winter when the canal must be allowed to freeze. If sheet ice does not form, frazil ice will, and frazil ice is a curse to turbines. At present, power output must be curtailed by shutting down flow through the power plant long enough to let the protective surface ice form. When Beauharnois Canal is fully dredged, such regulation of flow, with its attendant loss of power, may not be needed.

Two engineers supervise excavation work on the canal. They are Antoine Rousseau, superintending engineer of construction at Beauharnois, and Serge Godbout, resident engineer, canal works. The superintendent of construction is Michael A. Horgan; mechanical superintendent is James McKenna; dredging superintendent is Sylvio Lalancette.



At Beauharnois Canal:

Dredge Hydro-Quebec Is Floating Power Plant

M. A. Neslin
General Electric Co.
Schenectady, N. Y.
C. P. Kaufmann
Ellicott Machine Corp.
Baltimore, Md.

The world's most powerful dredge, the Hydro-Quebec, has also to be a most rugged piece of construction equipment. It must meet severe conditions of mechanical shock, vibration, torque, adverse atmosphere, dynamic overloads. And it must meet these requirements with power to spare, with fine control and with low maintenance cost.

This water-borne combination of mechanical and hydraulic excavator and transporter has three continuously operating main functions: the pump, the cutter, and the swing winch. All three are powered and controlled electrically.

The 17-ft diameter pump has passed boulders up to 38 in. across, weighing about 1,500 lb. It passes these in less than half a second. This pump has an 8,000-hp motor with no-load speed of 257 rpm on 13,200 volts, 3 phase, 60-cycle power.

Nature of the main pump motor load is the typical centrifugal pump load except that the density of the material pumped is continually varying from relatively pure water to mixtures of water, sand, clay and boulders.

To handle this type of load, the pump motor design provided for:

- Class B insulation throughout.
- 200% breakdown torque.
- Continuous operation down to 80% of rated speed at constant torque.
- Lubrication under conditions of 3 deg tilt fore and aft and 5 deg tilt athwartship.
- Special moisture resistant varnish treatment of rotor windings. Protective equipment on the pump motor includes:
- Bearing temperature relays.
- Resistance temperature detectors.
- Drip cover.
- Corrosion resistant fittings.

The speed, under load, of the pump motor is controlled by a liquid rheostat load regulator which controls the motor secondary resistance. This speed control is essential to permit the dredge operator to select optimum speed to meet the varying conditions of density, suction head, discharge head, discharge line length and discharge velocity.

It is essential that the operator have some control of the pump discharge velocity when loading an empty line after a pump shut down. If the pump discharge velocity is too high, the hammer effect caused by the pump discharge encountering a sharp turn in the discharge line may cause damage. The dredge operator also has an emergency stop by which the pump motor circuit breaker can be opened. This is necessary because the extremely abrasive nature of the dredged material may weaken the discharge pipe and cause the line to burst.

As an alternate choice of operation, the dredge operator may advise the switchboard operator to provide automatic load regulation. The dredge operator may then select a load input to the pump motor, and the automatic control will hold the load constant at that value by adjusting the secondary resistance. This permits high production since the motor can be operated at rated input continuously. Also in the case of the pump

"What do you mean you can't get good prints?"

Don't expect the Blueprinter to produce sharp prints from poor tracings. Be sure! Switch to graphite-saturated

IMPORTED CASTELL

Wood pencil or Imported 9030 Lead and LOCKTITE Holder with new gun-rifled vice-like clutch. (pat. appd. for).

Picture of an indignant man who forgot that poor pencils produce poor tracings—and poor tracings produce poor prints.

Save yourself money and manhours by converting 100% to imported CASTELL, the drawing pencil that lays down more graphite on the line. CASTELL produces cleaner prints, many more prints than any other pencil. Giant aircraft plants have proved it with their own independent tests. Pennies more per pencil will save you many dollars, much irritation. Call your Dealer today.

A.W. FABER-CASTELL
PENCIL CO., INC. NEWARK 3, N. J.

jamming with a large rock, the automatic response is much faster than that of a man using manual control.

• **Cutter motor**—The cutter motor is rated at 1,000 hp and runs 450-600 rpm on 600 volts d-c. It is designed for especially severe duty encountered as a result of being mounted on the ladder and exposed to the elements in addition to severe electrical and mechanical shock loads.

Some of the cutter motor specifications are:

• Suitable for continuous operation with shaft in any position between horizontal and 45 deg axial tilt.

• Weatherproof construction.

• Class B insulation with moisture resistant varnish treatment and marine parts.

• Motor designed good for 1,500 hp for 5 min and 2,000 hp for 1 min.

Severity of shock loads which must be withstood by the cutter motor can be appreciated by the fact that the cutter is driven by a solid steel shaft 15¼ in. in diameter from the cutter side of the gear box.

It is also notable that motor characteristics provide maximum torque at stall, which permits the dredge operator to "pry" rocks out of the bottom of the channel with the cutter.

The cutter has an additional "high-production" feature. The dredge operator watches his cutter tachometer and causes the swinging winch to pull the cutter into the material at such a rate that the cutter operates at the current limit point for the speed chosen. When the cutter speed starts to drop, the dredge operator eases off on the swinging winch until the speed is restored. Thus the drive is forced to operate at the peak horsepower for the particular speed chosen.

Another desirable feature of the cutter control is a "suicide" connection to limit circulating current when the master switch is in the "off" position. The cutter drive has no brake and very little friction. To prevent residual generator voltage from circulating current and causing the cutter to creep, the suicide circuit is established when the master switch is in the "off" position. This is especially desirable in view of the frequent cutter teeth inspection and short-duration maintenance tasks.

Speed control is an advantage because of the varying nature of the channel bottom from solid rock to clay and sand. Low speed points used for positioning the cutter are also desirable from the standpoint of cutter maintenance. The channel boulders are so abrasive that the cutter teeth caps must be changed every day on the front rows and every three days on the back rows, despite the fact they are made of the toughest, most abrasive-resistant alloy available.

Reversing is of benefit during maintenance and also for freeing obstructions that may foul up the cutter.

• **Swing winch motors**—The swinging winch (sometimes referred to as the hauling winch) is powered by two 187.5-hp, 230-volt motors in series with the 325-kw swinging winch generator. This drive has a peak momentary capacity of 800 hp.

The speed-load characteristic is similar to the cutter characteristic and thus maintains a taut line on the swing at all times regardless of load. This protects the swing wire ropes from sudden jerks.

Extremely high response is not necessary. The dredge operator watches the swing generator ammeter and when the needle approaches the preset red pointer, he is warned to reduce power to avoid breaking the swing ropes. The nature of the drive is such that the operator has time to respond and initiate the new master switch settings before any damage can be done.

The channel bottom being dredged determines the cutter speed, and thereafter production is a function of swinging speed and pump horsepower. The proper synchronization of swinging speed and cutter speed is therefore an important part of the art of cutter dredging.

In normal operation, reversing of the swinging winch is accomplished by pneumatically operated clutches at the two winch drums. Electrical reversing is for maintenance work and specialized dredging operations.

Operating a dredge is a rigorous and demanding job. Design of the lever room and the dredge operator's console on the Hydro-Quebec is intended to minimize operator fatigue. The console contains not only electric control of all motions but also meters indicating conditions on the pump, cutter and hauling winch. Pneumatic controls and gages complete the operator's console.

Power for the Hydro-Quebec comes from the Beauharnois Power House at 44 kv to a mobile substation on a 50-ton trailer. This trailer has mounted on it a fan-cooled transformer and a circuit breaker and associated control.

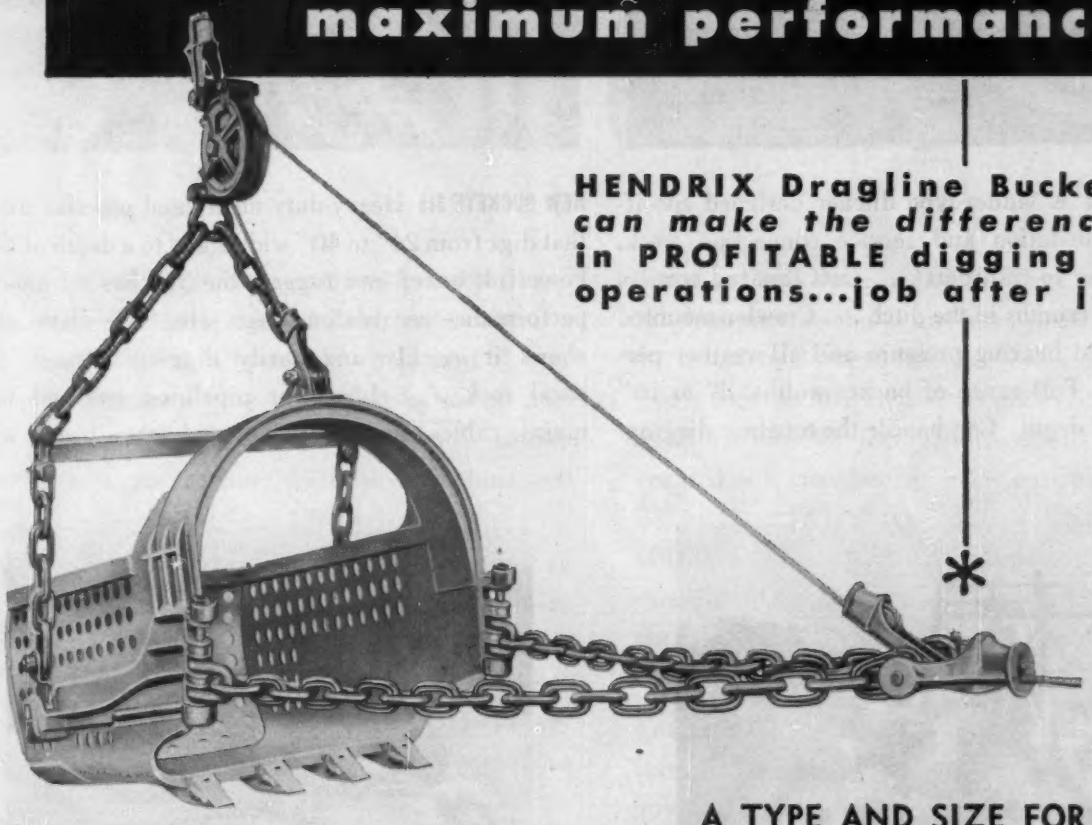
From the transformer secondary, a single 13,800-volt submarine cable 4½ in. in diameter is laid along the channel bottom out to a reel scow moored to the dredge. This submarine cable has its conductors enclosed in a neoprene jacket. From the reel scow the cable goes to the metal-clad switch gear and then on to its applications aboard the dredge.

Dirt is cheap

but not to move

unless . . .

your equipment delivers maximum performance



HENDRIX Dragline Buckets *can make the difference* in PROFITABLE digging operations...job after job

A TYPE AND SIZE FOR EVERY DIGGING PURPOSE

¼ to 40 Cubic Yards

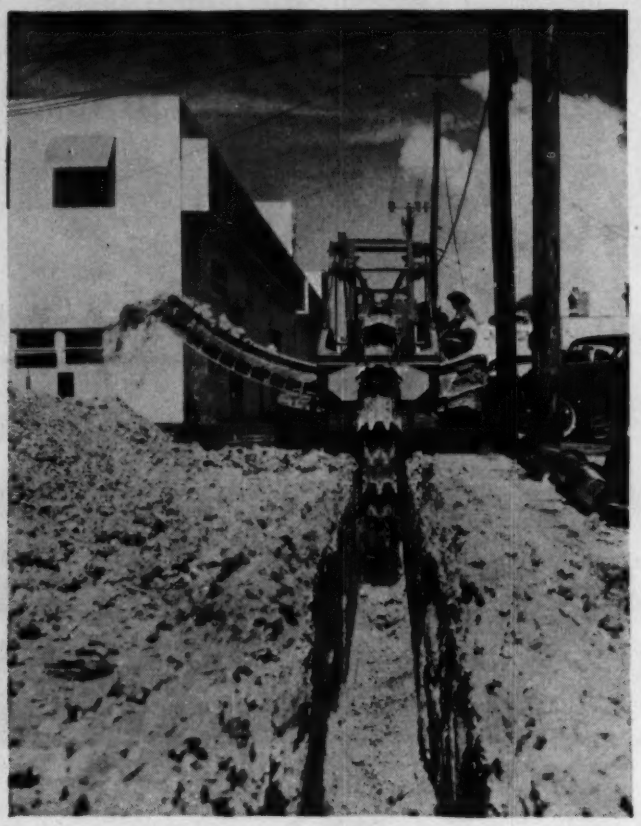
Hendrix Lightweight DRAGLINE BUCKETS

Hendrix Buckets available without perforations

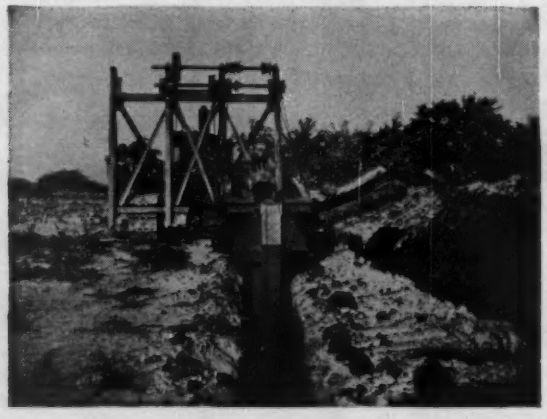
HENDRIX MANUFACTURING CO., Inc.

MANSFIELD, LOUISIANA

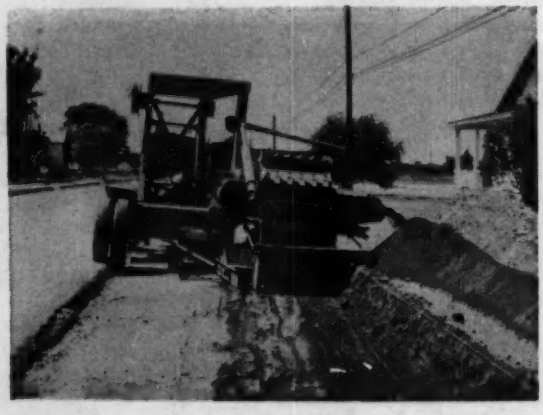
NEW BUCKEYE 403 A ladder-type ditcher designed specifically for foundation and service connection work. Small and easy to transport . . . Cuts squared corners and leaves no crumbs in the ditch . . . Crawler mounted for low ground bearing pressure and all-weather performance . . . Full range of bucket widths, 8″ to 16″ . . . Cuts to 5′ depth. Can handle the toughest digging.



NEW BUCKEYE 315 Heavy-duty utility and pipeline ditcher that digs from 24″ to 40″ widths and to a depth of 6′ . . . Powerful, heavy and rugged, the 315 has set amazing performance records on tough jobs. The photo above shows it quickly and easily digging through solid coral rock . . . Ideal for pipelines, gas and water mains, cables, sewers, ditches and other heavy work.



SPECIAL BUCKEYE 306 A special application for digging trench for roadside drainage where narrow shoulders and sloping banks prevent standard ditchers from operating. Offset digging wheel can dig trench in line with outside edge of crawlers. Used on Ohio Turnpike.



BUCKEYE HI-WAY WIDENER Digs up to a mile per day of clean, flat bottom ditch—uniform in width and depth and ready to receive material. Can remove broken concrete . . . Travels up to 20 m.p.h. under own power. The low cost method of handling side ditch problems.

GAR WOOD-BUCKEYE DITCHERS

LATEST DEVELOPMENTS IN DITCHERS

Over and over again comparative costs have proved to contractors that there is no such thing as economical 'all-purpose' equipment . . . If specialized jobs are to be done at lowest possible cost, specialized machines must handle it—and no machine handles a ditching job better than a Buckeye Ditcher!

For over 50 years Buckeye has pioneered in the development of specialized equipment to dig ditches faster, better and at lowest possible cost . . . Although known and used in every part of the world, Buckeye engineering is never static—constant improvement and continuous advancement is the price of leadership.

The latest developments in the Buckeye line are illustrated and described on the page at left—but these new machines are but a small part of the *complete* Buckeye line . . . From the huge ''51', used on the biggest pipeline jobs, to a small machine for farm drainage work, Buckeye makes a machine for every possible ditching job! . . . Wheel type or ladder type—for wide cuts or narrow cuts—deep cuts or shallow cuts—there's a Buckeye that is designed to do the job exactly right, and at the least possible cost in the minimum amount of time.

Your dealer will gladly give you detailed information on the entire line—and show you how specialized equipment can pay off on faster, cleaner, more profitable ditching!

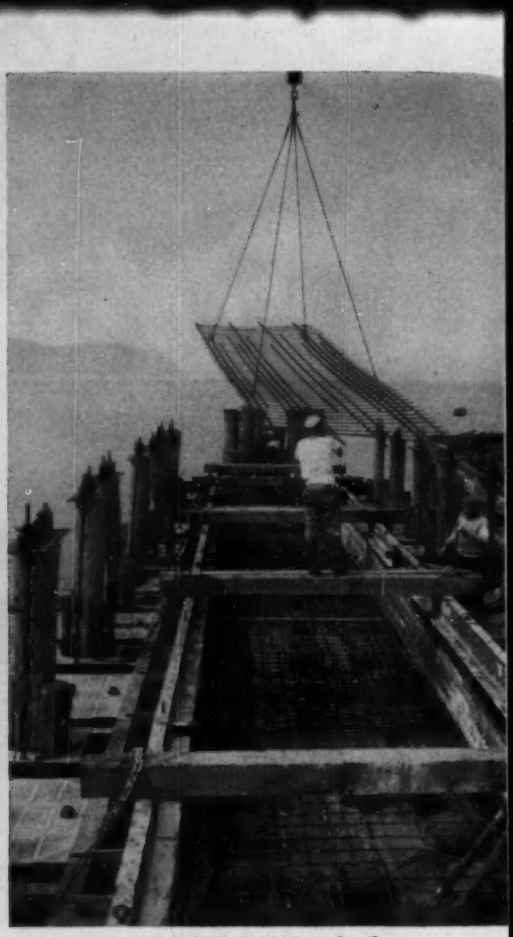
MODERN EQUIPMENT BUILT TO SOLVE MODERN PROBLEMS!

GAR WOOD INDUSTRIES, INC.

WAYNE, MICHIGAN

No. 522

HUDSON CHANNEL in the river's widest reach will be bridged by New York Thruway. Cantilever anchor-arm falsework is floated toward now-famous foundations.



FLOATING PILE TEMPLET and pilecap form was specially developed for job.

Tappan Zee Bridge: A Foundation Triumph

Two long construction seasons have passed since the first pile slid down its leads into the soft mud bottom of the Hudson River between Nyack and Tarrytown, N. Y.

Today, two contractors look with satisfaction—and relief—at their accomplishment. Safely in place are the Tappan Zee Bridge foundations, stepping stones for steelwork that will carry the New York Thruway across this 2.8-mile expanse of water—widest in the great river's course.

Outstanding feature of Tappan Zee Bridge is its well-known use of buoyant concrete boxes in major foundations—an adaptation of the famous Pier 57 technique. Box construction in a natural drydock at Haverstraw, N. Y. was described In ENR July 9, 1953, p. 33. At-site, a major problem was placement of piles as long as 295 ft through the boxes. This was part of contracts held by Merritt-Chapman & Scott Corp., New York. The other foundation contractor, Construction Aggregates Corp., New York, starred with a floating pile-cap form in its 1¼-mi western-approach trestle.

Economy of the foundations, placed under adverse circumstances, is emphasized by the fact they cost only one-third of bridge's $60 million.

This is not to detract from the steelwork, featuring novel offsite truss erection and two falsework spans that are major bridges in themselves, but that is another story, to be told later this year when the last rivet has been driven in the 1212-ft main-channel cantilever bridge.

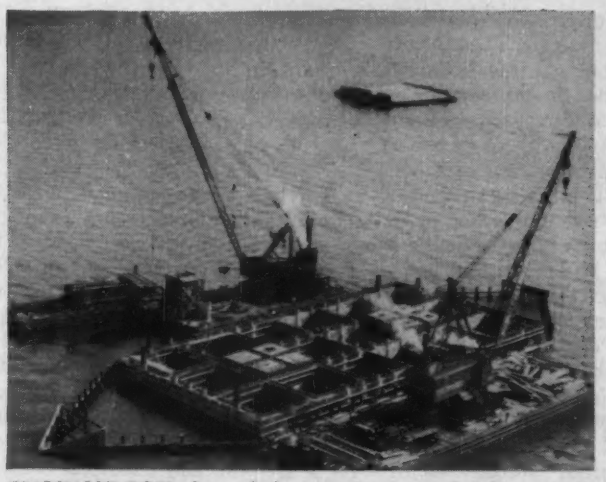
Main piers and flanking piers for the 602-ft anchor spans of the cantilever account for four of the project's eight buoyant-box foundations. Four more lie in succession westward from the main bridge, and there are also three two-shaft pier bents supported on pairs of conventional circular-cofferdam foundations with bearing piles driven to rock. To the dividing line spans east of the main structure are 235 to 250 ft. long. East of the cantilever, three more cofferdam piers at 235 to 250-ft spacing take the job to the New York Central main line tracks. From this point to the west shore the big bridge's six-lane deck will be supported on 165 trestle bents at 50-ft centers.

• **Piles win over mole**—Bed rock under the trestle is beyond the reach of bearing piles, dropping off to 1,400 ft at the west shore. Eighty to ninety-five-foot wood friction piles were chosen to support the trestle after an alternative idea—an earth mole on sand-drained shallow mud bottom—had been found more expensive.

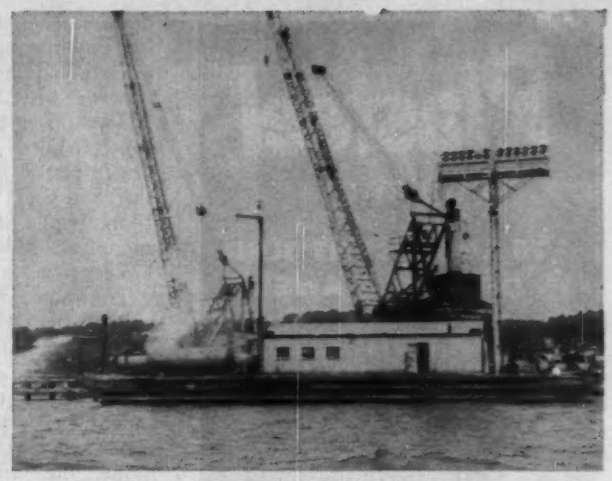
More than 2,000,000 lin ft of piles were driven, as many as 140 going into a single bent. Anticipated loading on each pile is 12½ tons, of which 8½ tons is dead load.

• **Floating pilecap form**—Fast pile and cap placement was achieved by templet-forms 100 ft long. They consisted of floating halves, each carrying a removable steel side-form and adjustable V-shaped end forms. When the two elements were brought together they supported a plywood bottom form at El -1.5. This was 6 in. below the designed pilecap soffit elevation. Pile-templet holes 20 in. in dia were precut in the plywood at designated pile positions.

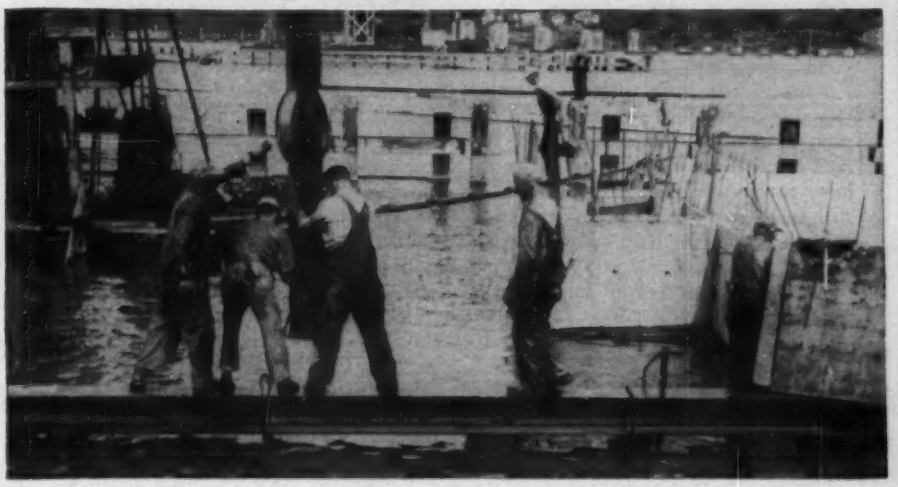
The framework of each floating element contained ten standard 5x5x7-



BUOYANT BOX, shown before topping-out and sinking, carries two-thirds of dead load. Remainder goes on end-bearing piles.



COMPRESSOR BARGE mounts high air capacity needed for air-lift mucking of 30-in. pipe piles to depths as great as 295 ft.



AIR LIFT pipe moves to another pile. Steel beams temporarily atop buoyant box give dry footing. Mucking below 200 ft a booster air nozzle was used 80 ft from bottom.

TINY COFFERDAMS of concrete pipe enable dewatering in H-pile wells. Concrete from chute (right) bonds piles to box.

ft steel pontoons, evenly spaced along the 100-ft length with the 7-ft dimension the depth. A runner beam at the inner, lower face of the frame supported 8x12 horizontal cross-tie timbers on three-foot centers when the form was assembled. The ties were fixed alternatively to one half then the other, so that when the form was dismantled the ties parted like the fingers of a man's two hands. Tie-beam lengths were varied to give a 9-ft to 19-ft pilecap width range.

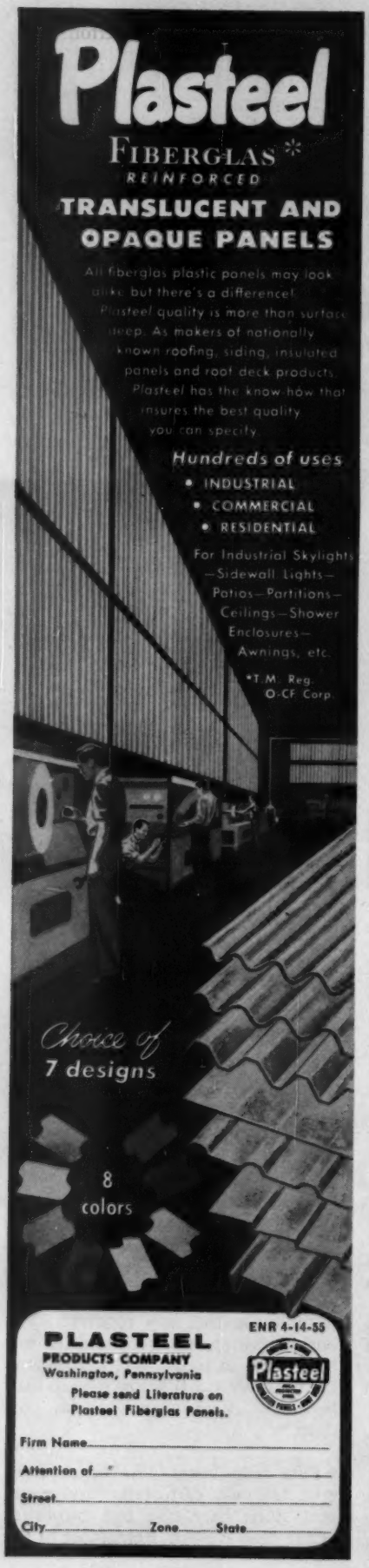
For piledriving and cap concreting the floating form was held rigidly with the aid of pin piles driven through sleeves between the pontoons. A yoke across each pin pile top held the form up to proper elevation, and blocks on the pin pile kept the form from floating higher.

With the floating form secured and the templet bottom form in place atop the cross-tie timbers, friction piles were driven to exact grade, with their tops at El zero for one-foot embedment in the cap's structural concrete. Spaces between plywood and piles were closed, and a 6-in. course of quick-setting tremie concrete was placed to seal the form. This accounted for the extra form depth and solved what otherwise would have been a perplexing concrete problem, calling for placement in short, low-tide periods. After dewatering (mhw is El 2.2) cap steel was placed.

The remainder of each bent consists of four columns and a cap supporting steel roadway stringers. Bent heights are from 22 ft at west shore to 76 ft at transition to longer spans leading to main-channel crossing.

It was at the main-channel piers and other buoyant ones that most of the real foundation pioneering on the job took place. In addition to describing their construction, ENGINEERING NEWS-RECORD has told how revibration aided at-site placement of topping-out concrete in the boxes (ENR Mar. 10, p. 42). Immediate watertightness was necessary because the added weight submerged boxes enough to immerse the new concrete. The boxes subsequently were sunk to prepared beds in such a way that tops of the boxes were 2 ft below mlw so their buoyancy effect would remain constant.

• **Piles help boxes**—The boxes, however, tell only part of the bridge-support story; they take but two-thirds of the dead weight. Remainder of the


Plasteel
FIBERGLAS*
REINFORCED
TRANSLUCENT AND
OPAQUE PANELS
All fiberglas plastic panels may look alike but there's a difference! Plasteel quality is more than surface deep. As makers of nationally known roofing, siding, insulated panels and roof deck products Plasteel has the know-how that insures the best quality you can specify.
Hundreds of uses
• INDUSTRIAL
• COMMERCIAL
• RESIDENTIAL
For Industrial Skylights —Sidewall Lights— Patios—Partitions— Ceilings—Shower Enclosures— Awnings, etc.
*T.M. Reg. O-CF Corp.
Choice of 7 designs
8 colors
PLASTEEL
PRODUCTS COMPANY
Washington, Pennsylvania
ENR 4-14-55
Please send Literature on Plasteel Fiberglas Panels.
Firm Name
Attention of
Street
City Zone State

dead weight, plus live load, is taken by end-bearing piles. These piles were driven through corrugated-metal pipe wells installed in the boxes.

Two pile types were used: a 30-in. concrete-filled pipe at the four main-bridge piers (the main river members also had steel H-pile cores); and a 14-in. H-pile at the four other buoyant boxes. Maximum H-pile depth is 175 ft; pipes go as deep as 340 ft.

The pipes were driven open-end, which meant they had to be mucked out to their full depth, and concreted underwater to the same depth—both problems of unprecedented magnitude. Mucking was done by the conventional water jet and airlift technique, the enlarged problem being mostly one of increased water pressure and air-supply and pipe capacity.

• **Tremie eliminated**—Underwater concreting, on the other hand, went beyond ordinary tremie placement. Engineers were dubious that effective tremie work could be done in a 30-in. pipe at 295 ft—especially when the concrete in main-pier piles would have to be placed in space restricted still further by an H-beam structural core. This led them to adopt a grout-concrete approach, using two small pipes—an intrusion-grout pipe and a sounding-well pipe.

The pipes were inserted to the bottom and aggregate was volume-batched into the pile for a 20-ft lift. Based on voids determinations, computed quantities of grout were pumped into the aggregates, the lower end of the grouting pipe being kept below the level to which grout was known to be rising. The aggregates were placed for the next lift, when grout was known to be at a depth of about 5 ft below top of the aggregate.

In this way, 146 pipe piles were concreted. The concreting, however, does not tell the whole pipe-pile story. The piles' end-bearing was built up by grouting, and their upper ends had to be bonded to their boxes.

• **Pile-tip buildup**—To improve end-bearing after driving and mucking, stage grouting was conducted in the weathered stratum that had stopped the pile. At the time of concreting piles, a 5-in. casing pipe was inserted with a concrete plug at its tip. A 4-in grout hole was drilled through casing pipe, the batches of grout were forced into the rock. This operation was repeated, deeper each time, as many times as the rock would take grout. Depth of this treatment ranged from 5 ft. to 20 ft.

At the upper end, bond between pile and box was achieved initially by placing grout between the pile and the inner wall of its encasing 36-in. corrugated metal-pipe well. This grout extended from the box bottom upward to the point where the H-pile and reinforcing cage was cut off (cutoff El −39). Grout concrete then was placed up to deck level (El −2).

• **Tiny cofferdams**—Bond between the H-piles and their encasing 25-in. corrugated metal pipes were done in the dry, which meant some sort of cofferdam had to be fashioned at the submerged box deck. The answer was a 6-ft section of 4-ft o.d. concrete pipe, set atop the pile hole and caulked around the lower end. A 5-ft tremie seal at El −42 complete preparation for dewatering. The H-pile was cut off at El −32 and structural concrete was placed to deck level.

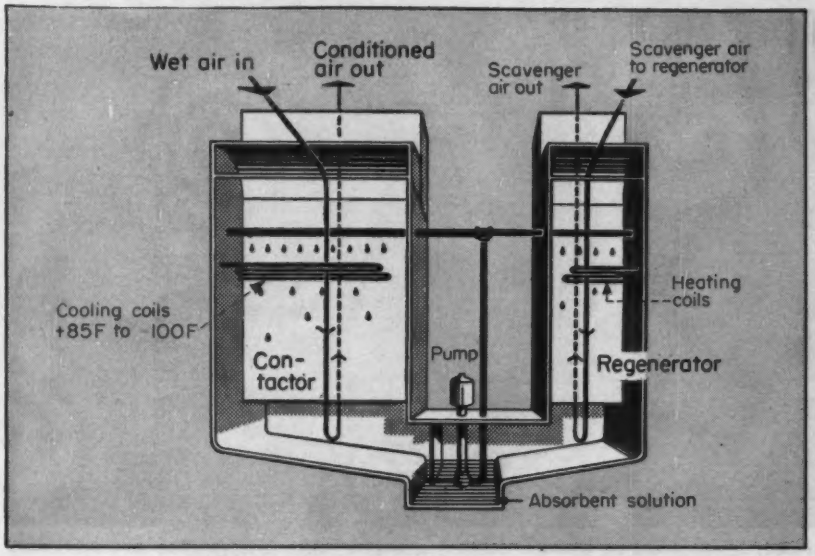
The fact that box decks were submerged also called for cofferdaming at pier-shaft stub locations.

• **Piledriving**—The foregoing summarizes the novel features of Tappen Zee Bridge foundation construction. Piledriving was more nearly a conventional operation, but the great depth to which some of the pipe piles were driven naturally raises some questions as to the driving procedure.

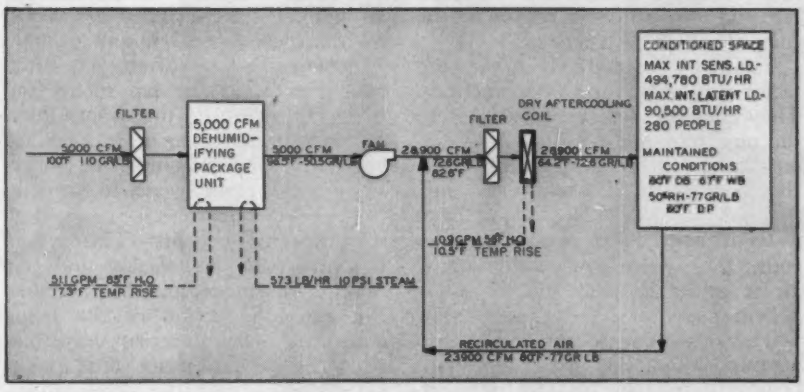
Because of the "freezing action" of piles on re-driving, the location of splices were planned to avoid splicing the pile when its tip was in dense strata. Customary approach was to set a 150-ft section of 30-in. pipe first; add a 60-ft welded section with the aid of a cast steel sleeve for quick connection; and add another section depending on the expected depth to hard stratum. For a test penetration to 286 ft, the fourth section was 50 ft long and a fourth section, 40 ft long was finally welded on. This made a total of 310 ft.

The first 100 ft went with hardly any hammering. To El −130 the rule was 4 to 12 blows per foot. At this point ground changed from silt to sand and gravel; blows increased to 20 to 90 per foot. Clay took over to El −150, requiring 20 to 60 blows per foot. The pipe then entered hard, gravelly clay requiring at least 90 blows per foot. Practical refusal was met at El −286.

• **Management**—Design and construction supervision for the New York State Thruway Authority is handled by Madigan-Hyland, New York. Emil H. Praeger is in charge of foundation and superstructure design for Madigan-Hyland and Harold Knox is resident engineer for the entire bridge. Construction Aggregates Corp. project manager was R. E. Mothersburgh. Merritt-Chapman & Scott project managers were, successively, B. F. Sanders, R. I. Senn and E. B. Crooks.



Dehumidifying Unit Is Key to . . .



. . . Low-Cost Air-Conditioning System

Wm. J. Collins, Jr.
Consulting Engineer
Collins and Gould
Oklahoma City, Okla.

An air-conditioning system incorporating chemical liquid-type dehumidification equipment provides flexible, low-cost comfort conditioning in the new 5-story U. S. Fidelity and Guaranty Building in Oklahoma City, Okla. This equipment makes the fresh-air supply much drier than the general air in the building. Thus, recirculated air needs only to be cooled to maintain required temperature and humidity.

The building is roughly 60x115 ft, with 9-ft ceiling heights. Including the basement, the floor area conditioned is 41,400 sq ft.

• **Strict specifications**—Design of the system was based on strict owner requirements for maintenance of specified comfort conditions during a 6-month-long cooling season:

1. Air distribution should be designed for minimum encroachment on rentable floor area. Since the basement is to be used for office space, as much of the air-conditioning equipment as possible should be placed in a penthouse.

2. System control should be simple and automatic. Only routine maintenance should be required, thus freeing the service staff for other duties.

3. Sufficient ventilation air should be used, but for economical operation, the major portion of the air supply should be recirculated air. Fresh air should be sub-dehumidified (made much drier than circulated air), to absorb the entire building's moisture load. Then, sensible cooling only could be used on the recirculated air.

4. Zonal control should be employed, because the building is completely closed in on the east and west by other buildings. Other sides contain large glass areas.

5. Sensible cooling should be by chilled water for economy.

6. Equipment choice should be based on an analysis of performance, costs, operational characteristics and flexibility in meeting varying day-to-day demands.

Air in the offices is to be maintained at 80 F dry bulb and 67 F wet bulb, with 77 grains of moisture per pound (50% relative humidity). Maximum internal sensible heat load was calculated to be 494,780 Btu per hr; maximum internal latent heat load, 90,500 Btu per hr. Amount of fresh air needed is based on activity and requirements of about 280 persons.

• **Air distribution simplified**—With these requirements in mind, a low-velocity, parallel distribution system was designed. Supply and return risers are located on each floor in a central service space, which also encloses the chimney stack, conditioned fresh-air supply duct and building service lines. On the second and fourth floors, this mechanical core also contains main air-distribution fans, plenums in which recirculated and conditioned fresh air are mixed, automatic viscous filters and cooling coils. On the other floors, where only booster cooling coils are needed, service-core space not required for equipment is used by office personnel as lunch rooms.

Ducts for both supply and return air are enclosed above a false ceiling, which forms a plenum 2½ ft high. The ducts service each private office, branching from a central run, which extends the length of the building.

Air is diffused into offices through draftless-type outlets. Supply air is fed through the outside rings of these outlets, while return air is taken back through the center rings.

Air is not recirculated from the corridors, lounges, stairwells or basement area. Each lounge is equipped with a separate exhaust fan.

• **Operating costs are less**—Two systems, refrigeration and chemical-type dehumidification, were compared on the basis of performance, initial and operating costs, operational characteristics and flexibility. A dehumidification system incorporating a chemical-type package unit for sub-dehumidifying the fresh air was ultimately chosen.

This system is able to sub-dehumify the fresh air as desired with cooling-tower water at 58 F. Considerably more than the 1½ hp used by this system would have been required by the refrigeration system to cool down to the 48 F dewpoint needed.

The dehumidification system also takes advantage of the fact that gas costs less than electricity in Okla-

CONDITIONED OFFICES (left) receive cooled, dehumidified air through draftless ceiling diffusers (arrow). The air-conditioning system is zoned because the 5-story building is hemmed in on two sides by other buildings (right).

homa. In the equipment, regeneration is accomplished with low-pressure steam, which is generated in the summertime by the same gas-fired boiler that provides domestic hot water. Operating costs of this system are thus lower than those for refrigeration. First costs are comparable.

• **More flexibility**—Because of the wide range of automatic adjustment of output to load, the dehumidification system was found to be more flexible in meeting increased or decreased demands. Steam and water usage parallel demand. Both of these factors are of decided advantage, since atmospheric relative humidity is high in this locality during the spring and fall. Sharp variations are experienced from day to day and even within one day.

• **How the system works**—The flow diagram of the entire system on p. 47 shows air volumes, temperatures and humidities at various points and utility requirements. The diagram is based on maximum summer design conditions, with 5,000 cfm of ventilation air being introduced at 100 F dry bulb and 110 grains of moisture per pound.

The fresh air is fed first to the contractor chamber of the package unit, shown diagramatically on p. 47. There, it contacts a flood of absorbent solution, and both pass over finned cooling coils.

Primary constituent of the solution is lithium chloride. A property of this chemical is that its affinity for moisture can be varied by regulating either its temperature or concentration, or both. For this type of operation, the concentration is usually maintained constant and the temperature varied by regulating the temperature and rate of flow of coolant in the coils.

Thus, the cooling coils in the contactor section perform two functions. They cool the absorbent solution to the predetermined temperature necessary for proper dehumidification, and they cool the air. At maximum, only 51 gpm of the 85 F cooling-tower water is used. After passing over the coils, the cooled and dehumidified air is exhausted into the air-supply system at 96.5 F, 50.5 gr per lb.

The absorbent solution falls into a sump. From there, the solution is constantly pumped back to the flooding nozzles in the contactor section and also to those in the regenerator section. This chamber is much smaller than the contactor section, and the amount of solution sprayed in it is much less.

Regeneration is automatic. As the absorbent solution becomes diluted with water, it occupies more volume in the sump, raising a ball float attached to a mercury switch. When the float reaches a predetermined level, the switch closes an electric circuit, actuating a motorized steam valve, which allows low-pressure steam to enter the coils in the regenerator.

When the solution passing over these coils heats up, it cannot retain the moisture absorbed in the contactor chamber. The moisture vaporized out is entrained by a scavenger air stream, which purges it to the outside. This system uses at maximum only 573 lb per hr of 10 psig steam for regeneration.

In the distribution system, the cooled and dehumidified air is supplied at 5,000 cfm to the mixing plenums on the second and fourth floors. There, it is mixed with the 23,900 cfm of recirculated air. This air mixture is then filtered and cooled for diffusion to 64.2 F and contains 73.3 gr per lb of moisture. The aftercooling coils in the fan rooms and the booster coils on the various floors use at most 109 gpm of 56 F chilled water. A 50-ton compressor system supplies this chilled water to the coils.

• **Unexpected benefits**—This system has proven to be efficient and economical in operation. Furthermore, the antiseptic action of the liquid absorbent has been an important added benefit. Bacteria count in the air stream leaving the dehumidification unit is sharply reduced from that entering.

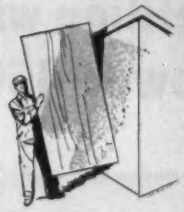
Also, since aftercooling is performed in the fan rooms with dry coils, a source of odors associated with bacteria growth found in many systems is eliminated. These features contribute to making the entire building area a more healthful and comfortable place in which to work.

There has not been any carry-over of absorbent solution with this system. Maintenance has been routine, consisting chiefly of periodic checking of filters, spray heads and control settings.

Because of the high latent loads, and the relative cheapness of gas, this system seems ideal for comfort air conditioning in the southwest.

Nolen and Moore of Oklahoma City were the architects. Chas. M. Dunning Construction Co. was the general contractor. Collins and Gould were mechanical consultants, and Hirsch-Swan Corp. was the air conditioning contractor. The dehumifying unit was manufactured by the Kathabar Division of Surface Combustion Corp., Toledo, Ohio.

No costly re-coating between pourings



Forms strip easily

Eliminates costly rubbing of oil stain and grain marks

Leaves concrete clean, smooth . . . ready for decorating

Not an oil . . . eliminates slip hazards

How to get more than 10 re-uses from plywood forms!

Coat them with

formfilm

Protect your investment in plywood forms with FORMFILM. It's a tough, abrasion-resistant, alkali- and water-resistant coating (not an oil). Eliminates raising of wood grain and reduces honeycombing.

FREE INFORMATION!

A. C. Horn Co., Inc., Dept. H1-49
Long Island City 1, N. Y.

Please send Money-Saving Facts on FORMFILM.

Name_____ Title_____

Firm Name_____

Address_____

City_____ State_____

A Subsidiary of Sun *Chemical Corporation*

HORN

A. C. Horn Co., Inc.

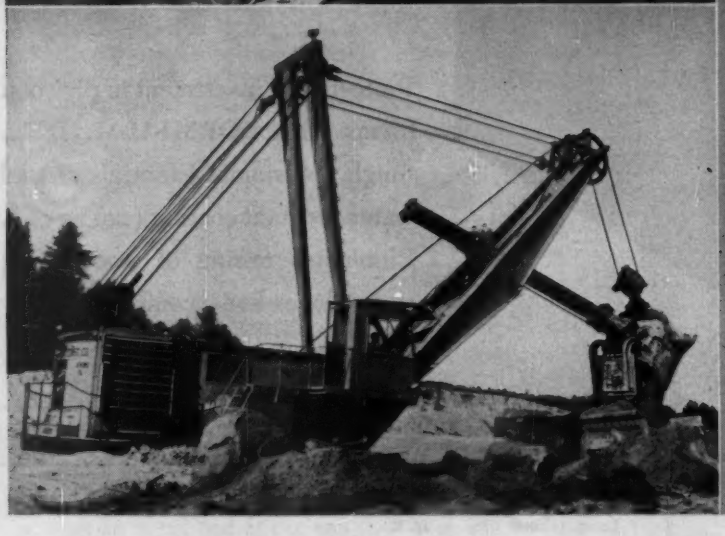
Manufacturers of materials for building maintenance and construction since 1897.

DIVISIONS OF SUN CHEMICAL CORPORATION

HORN • **HUDSON** • **WILLEY** (paints, maintenance and construction materials, industrial coatings) • **WARWICK** (textile and industrial chemicals) • **WARWICK WAX** (refiners of specialty waxes) • **RUTHERFORD** (lithographic equipment) • **SUN SUPPLY** (lithographic supplies) • **GENERAL PRINTING INK** (Sigmund Ullman • Fuchs & Lang • Eagle • American • Kelly • Chemical Color & Supply Inks) • **MORRILL** (news inks) • and **ELECTRO-TECHNICAL PRODUCTS** (coatings and plastics)

ROAD BUILDING?

Get the jump on competition with this 5½ yard Manitowoc 4500



FAST JOB-TO-JOB MOBILITY
FAST ON-THE-JOB ERECTION

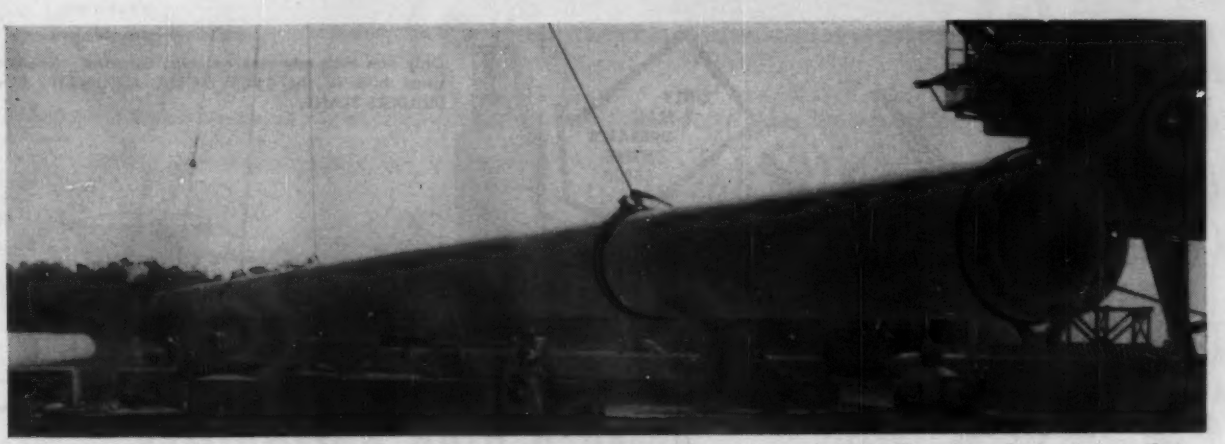
INDIANA TOLL ROAD — Proof of Manitowoc's mobility and fast, economical erection on the job. Western Contracting Corporation of Sioux City, Iowa, unloaded and erected this 4500 in record time "between trains". Total unloading and erecting time was less than four days. Because of its narrow, low travel clearance and design, unit was shipped on a flat car without having to be completely dismantled. This 5 yard dragline with 140 ft. boom was assigned to excavate more than 200,000 yards of material.

BIG DIGGING CAPACITIES
FAST WORKING CYCLES

WEST VIRGINIA TURNPIKE — Latrobe Construction Co.'s 4500 Manitowoc shovel with 5½ yd. bucket moved 550,000 yards of rock in a 4-month period — averaging 6000 yards per eight-hour day, with performance reaching a maximum of 778 yards per hour in "well shot" rock.

More and more successful road building contractors across the country are making the Manitowoc 4500 the "big tool" on their big jobs. When you have big yardage to move — move it fast with a giant Manitowoc 4500. Only the "4500" has the perfect combination of big machine capacity and the mobility and fast, simple portability of small machines. It can be easily trailored from job-to-job or transported by flat car. On the job it can be erected in a matter of several days and is easily maneuvered from one location to another without trailing a cable. Handles big rock without picking or scratching. With one 4500 instead of several small machines, you cut down on the number of operators and oilers on the job. Get the edge on competition — give yourself a "break" on your next bid — figure on a Manitowoc 4500. Write Manitowoc Engineering Corp., Manitowoc, Wisconsin.

MANITOWOC
SHOVELS 1-5 YD. Speedcrane CRANES 20-100 TON



FOUR-POINT PICKUP was used after 192-ft pile was cast, a five point pickup when handling the cylinder before placing.

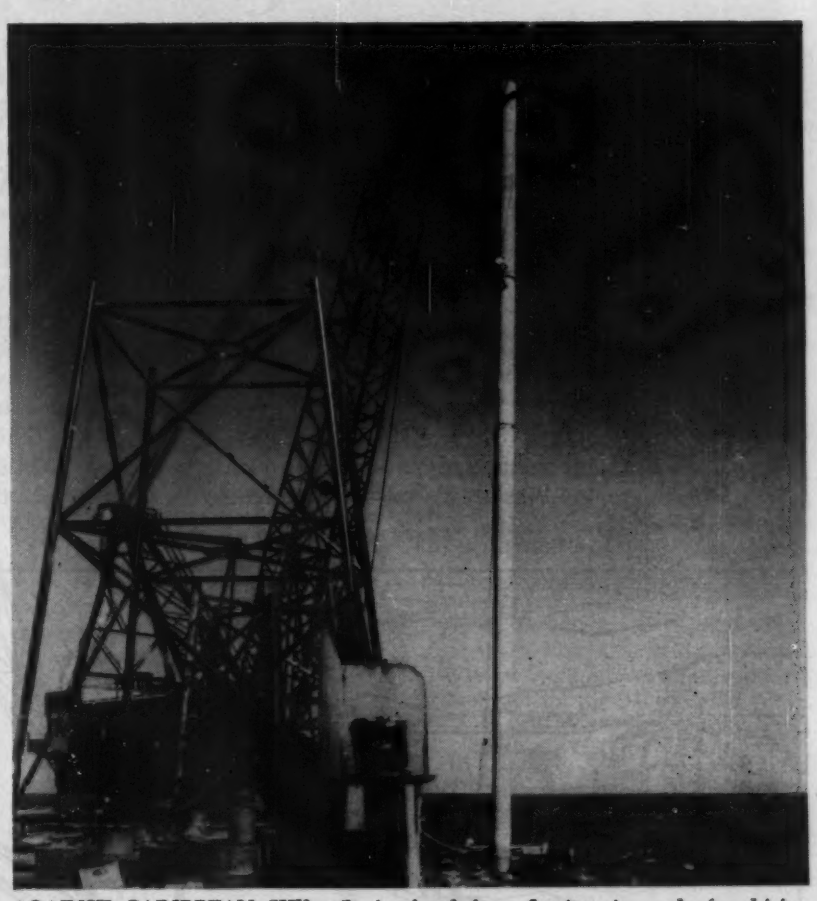
How to Drive 192-ft Concrete Pile

Myers Van Buren
Raymond Concrete Pile Co.
New York, N. Y.

What is believed to be the longest concrete pile ever made has been driven into the bottom of the Gulf of Mexico offshore from Morgan City, La.

A prestressed cylinder pile (ENR July 5, 1951, p. 38) it was 192 ft long and hollow, with a 36 in. O.D. and a 4 in. wall thickness. Prestress was developed by eight cables placed in holes cored in the 4 in. wall. Each cable was made up of 12 No. 6 wires initially stressed to 150,000 psi. Steel stress was transferred to the concrete by grout bond, and no permanent mechanical anchorages were used.

Theoretically, such a pile can be handled on a three-point pickup without developing tensile forces. But for safety under possible impact stresses, a four-point pickup was used in the casting yard and five-point on the job.



AGAINST CARIBBEAN SKY, pile is placed from floating rig, ready for driving.

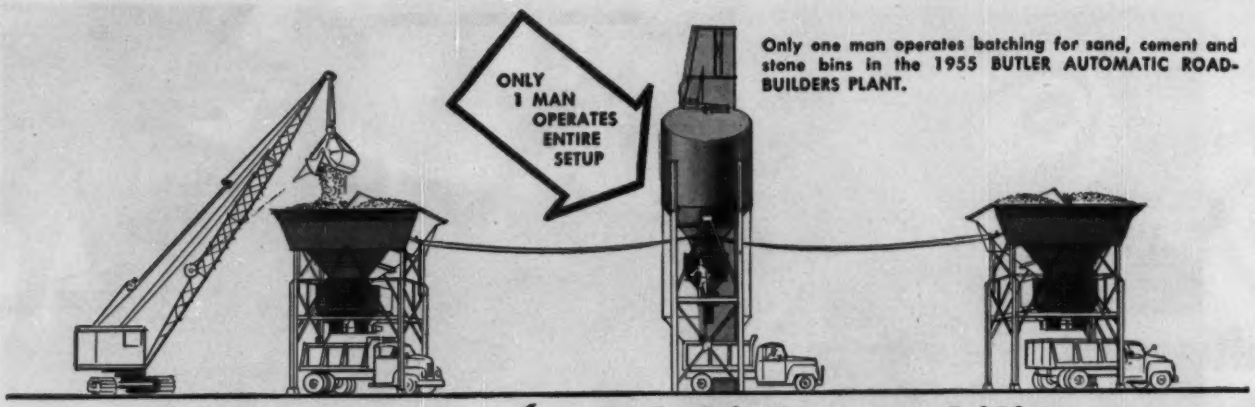
• **Driving**—The pile was to be driven in 37 ft of water. Under its dead weight, penetration was 22 ft below the mud line. As a consequence, since the installation was made without a guide or leads on the derrick, there was an unsupported pile length of 170 ft when the hammer was set.

Driving was done by a single-acting steam hammer with a 12,500-lb ram having an adjustable stroke mechanism that could be set for a 24-in. or 39-in. stroke, thus producing an energy of 25,000 or 40,000 ft-pounds. The pile was driven a total of 4,600 blows with the 24-in. stroke plus 1,000 blows with the 39-in. stroke. Maximum resistance was 400 blows per foot with the 39 in. stroke.

Although this pile was of extreme length and lightly reinforced (9.6 lb of prestressing steel and 5.0 lb of unstressed steel per lineal foot) it handled and drove very well, observers reported. No special equipment was required either in the pile manufacture or installation other than that normally used for such shorter piles of this type.

The practical limiting factor in the length of this type pile lies in equipment with boom length or leaders long enough for vertical handling. Assembly and horizontal handling in lengths greater than 192 ft should present no particular problems.

• **Credits**—The prestressed cylinder pile is a development of the Raymond Concrete Pile Company, which holds patents covering the process. The pile was manufactured by Gulf Prestressed Concrete Products at Morgan City, La. Installation was by J. Ray McDermott and Co., Inc., of Harvey, La. for the Magnolia Petroleum Co.



Only one man operates batching for sand, cement and stone bins in the 1955 BUTLER AUTOMATIC ROADBUILDERS PLANT.

NEVER BEFORE . . . { such high portability / such tremendous production / ONE MAN OPERATION

. . . IN A ROADBUILDER'S PLANT

The 1955 BUTLER ROADBUILDERS PLANT keeps pace with *TWO* 34E Pavers. High automation with push-button remote controls provide *one man operation,** to load 2 batches simultaneously from the cement, sand and stone bins. Batch discharge to the trucks can be actuated either by the truck driver or the operator. Master controls are located on the operators platform at the cement bin.

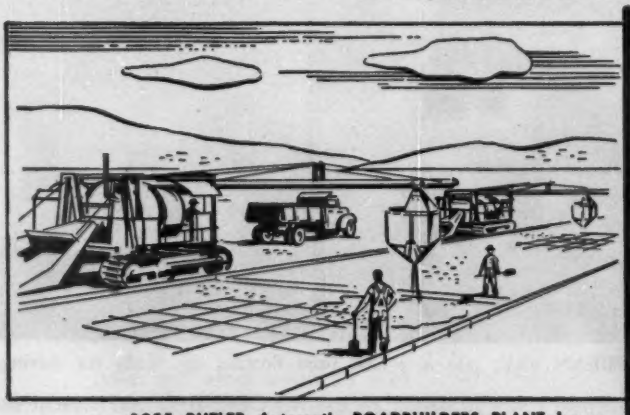
The batch combination of materials is pre-selected and pre-set and continues automatically until specifications require change.

To handle the large volume of materials for such a production flow, aggregate bins are flared to accommodate a high capacity bucket.

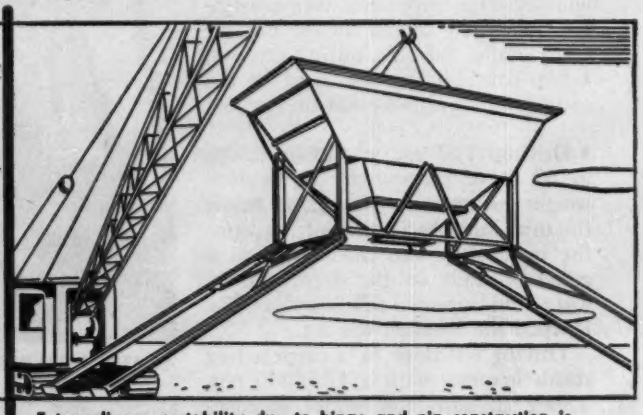
*Can be operated with 3 men if necessary.

NEVER BEFORE SUCH PORTABILITY!

For many years Butler Cement Plants have employed hinged, pin-connected columns and bracing, making them the most portable batching plants ever devised. Now Butler brings you the same structural system for your aggregate batching plants. So now the same unique Butler portability is yours in the complete Butler Roadbuilders Plant.



1955 BUTLER Automatic ROADBUILDERS PLANT keeps pace with two 34E dual drum pavers.



Extraordinary portability due to hinge and pin construction is an important cost-cutting feature of the 1955 BUTLER Automatic ROADBUILDERS PLANT.

BUTLER BIN COMPANY
947 Blackstone Ave.
Waukesha, Wisconsin

Please send me complete information about the cost-cutting advantages of the 1955 BUTLER Automatic ROADBUILDERS PLANT.

Name .....

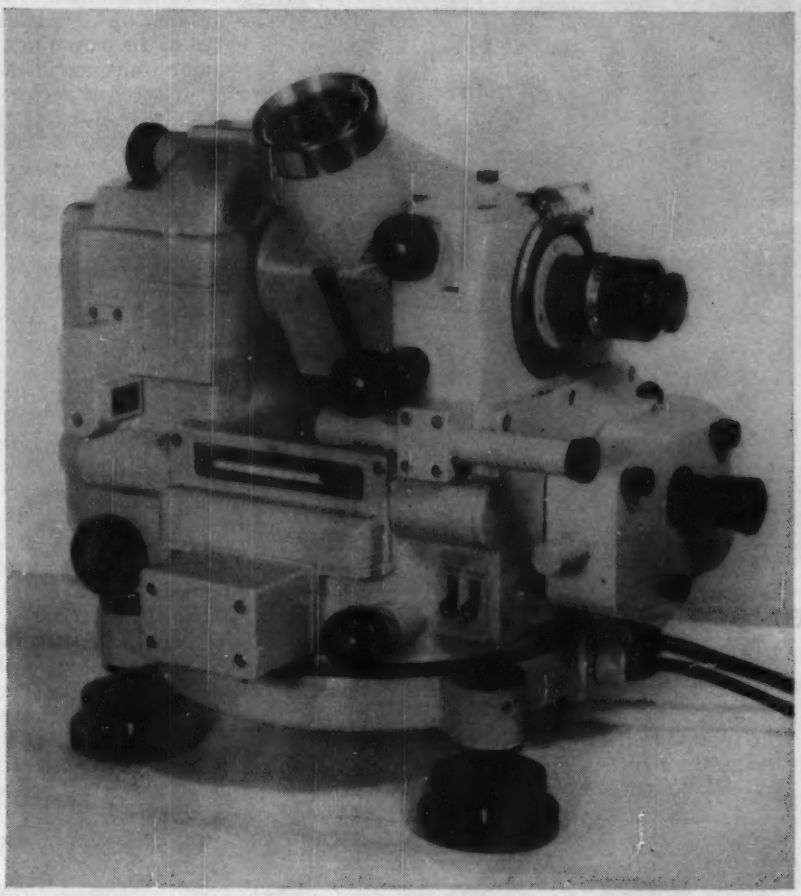
Company .....

Street .....

City ..... State .....

Write today for a complete description of this cost-slashing, labor saving, one-man operated BUTLER ROADBUILDERS PLANT. It's the difference between a highly successful season or a regretful "if I only had . . ." Use the coupon or send a postcard. But do it — now.

BUTLER BIN COMPANY
947 BLACKSTONE AVE.
WAUKESHA, WISCONSIN



THEODOLITE is wired to 6-v electrical source for field and photo illumination.

Photography Speeds Triangulation

Now available in this country is a theodolite that frees the instrument man from virtually all responsibilities except leveling and sighting.

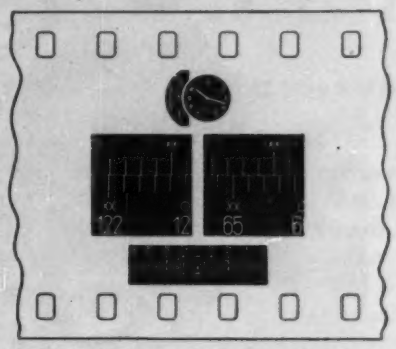
Designed for first order triangulation, the instrument employs photographic registration of horizontal and vertical readings. Thus the operator is relieved of the work of continuous reading and can concentrate completely on sighting the target and centering the altitude index level. The film is exposed in a fraction of a second and moves automatically for a new reading—48 exposures are made on a standard roll of 35 mm film.

When the film is exposed, four things are recorded: the image of the horizontal and vertical circle; the reading of the plate level, free from any parallax error, at the exact moment of observation; the face of a clock to indicate the time—within seconds—of the observation; and notes made by the observer indicating such things as the date, location and his name.

Separate note keeping is kept to a minimum. It is usually sufficient to record the name of the sighted target and the time of observation. However, it is recommended that the circle setting for the initial direction be taken as well as occasional visual readings for spot checking.

Evaluation of the films may be done at leisure and then filed for future reference and possible re-evaluation. The apparatus used for this employs the theodolite micrometer, which is removable. However, the evaluation equipment may also be equipped with an extra micrometer to prevent damaging the one in the theodolite through constant removal and remounting. The extra micrometer also permits evaluation of the film at a point far removed from the place of observation.

When evaluating the films, the same image is reproduced in the micrometer eyepiece as appears during visual observation at the theodolite.



FILM STRIP reveals horizontal and vertical circles, plate level, time and notes.

Consequently, the same conditions prevail for setting the coincidences as for reading the angle values.

According to the manufacturer, triangulation with the aid of photographic registration not only saves valuable time but also increases the accuracy of observation. The reason for this is that the influence from external sources, such as variations in atmospheric temperature, is minimized because of the considerably shortened period of measuring.

The theodolite is compact and fully enclosed to provide protection for sensitive parts. The telescope eyepieces are interchangeable and are available in 40X, 63X and 80X magnifications. Minimum focus is about 33 ft but this may be reduced if necessary through the use of special lenses. Telescope focus of 500 mm with small instrument size is achieved by means of double reflection.

The theodolite is produced by Askania-Werke, A.G. in the American sector of Berlin. American representatives are the GEO-OPTIC CO., INC., 170 BROADWAY, NEW YORK 38, N. Y.

Stainless Steel Trowels Reported to Last Longer

A line of trowels is being manufactured from a new and patented flexible stainless steel alloy.

The trowels are offered in two sizes: a 14 x 4-in. cement trowel ($5.95 each) with a straight handle, and a 10½ x 4½-in. plastering trowel ($5.75).

The plastering trowel is the same weight as other plastering trowels, but is said to out-wear a regular carbon-steel trowel several times. It is recommended for white-coat work as well as for scratch-coat work. GOLDBLATT TOOL CO., DEPT. Y22, 1960 WALNUT ST., KANSAS CITY 8, MO.

(*New Products continued on page 54*)

A-W Pioneers Converters in Graders

Among the more recent advances in construction equipment design, the torque converter is possibly the most universal in its application. Crawler and wheel-type tractors, trucks, cranes and shovels, front-end loaders, scrapers have all been equipped with the devices, but it remained for Austin-Western to be one of the first—if not the first—to successfully design a torque converter into a production-model motor grader.

According to E. C. Brown, A-W's chief engineer, the converter is similar to a fluid coupling; however, the coupling has only two major moving parts while the torque converter has three and sometimes more. As in the fluid coupling, the driving member or impeller passes the oil to the driven member or turbine. But under a load, the oil is redirected by a stator or reactor back to the impeller again. In this way the force on the turbine is increased and the output torque can be greater than the input torque.

When a load is picked up at the moldboard of a manual-shift unit, the grader is slowed down. With this reduction in travel speed there is also a consequent reduction in engine speed—just when higher power, i.e., greater engine speed is required. It is then necessary to shift down to a lower travel speed and rev up the engine to produce the higher power required.

With the torque converter, this shifting down is done automatically. With virtually no load and at high speed there is no torque multiplication: the converter is then, in effect, a fluid coupling. When the load is encountered, oil is deflected back from the turbine to the impeller to produce the greater torque. On the A-W graders this torque multiplication factor can be as high as 2½:1.

Further, the converter on the A-W grader is equipped with a device called a tail shaft governor in addition to the usual engine governor. The tail shaft governor is linked to the output or tail shaft of the torque converter in such a way that as shaft speed is decreased—such as when under load—more fuel is fed to the engine. Loss of travel speed is only momentary with this system.

The overall result is smoother transmission of power—no shocks and no overloads. Further, since a great deal of the "shifting" is automatic, operator fatigue can be reduced with resultant greater production.

Austin-Western will produce its 6-wheel and 4-wheel drive and steer graders in both the 88 and 99 Series, with or without torque converter. Initial production of the first Super 88 models with torque converter drive will begin immediately, and by midsummer, both the 88 and 99 Series will be available with torque converter.

No scale of prices has as yet been announced, but on the average, a torque-converter model will cost about 7% more than its conventional counterpart. To all outward appearances the torque-converter and standard models will look alike except that the chassis has been lengthened a few inches to accommodate installation of the torque-converter unit.

The graders will be equipped with

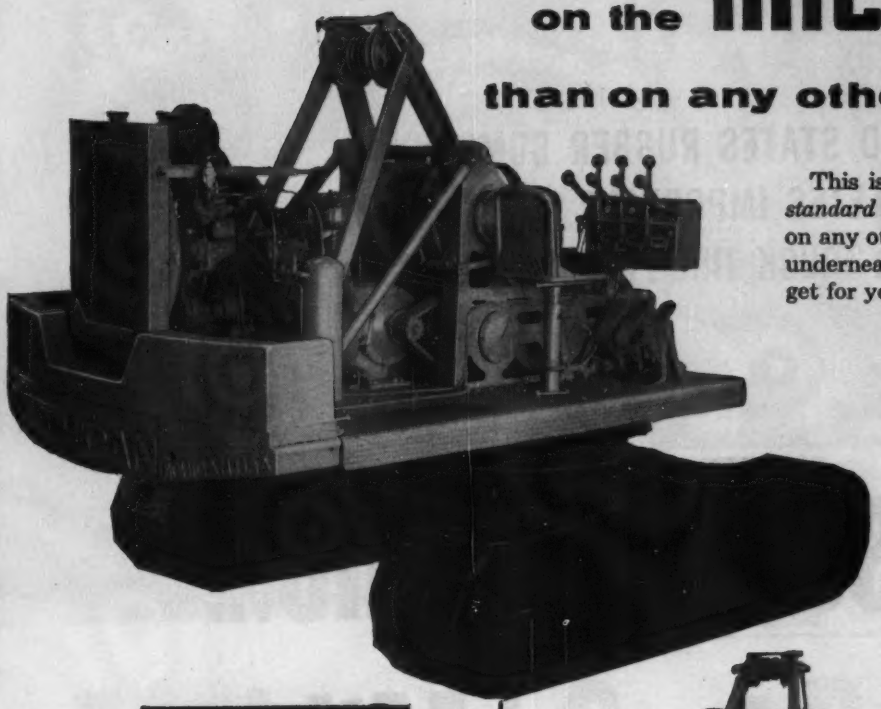
Vibrator Compacts Thick Road Bases

A vibratory compactor is said to have sufficient power to lay and compact bases up to 12 in. thick in one pass. Named the Roadpacker, the equipment can be used in either forward or reverse on macadam base courses, gravel sub-bases and soil-cement bases. Full vibrating width with six shoes is 13 ft but the operator can fold one or both of the end shoes for a narrower working width or highway travel. Top highway speed of the unit is 30 mph; working speeds are variable. The vibrating shoes are enclosed so that they can be operated under dirt or water. All vibrating parts are pressure lubricated. Roadequip Mfg. Co., RD #2, Willoughby, O.

More "Big Machine" Features

on the MICHIGAN C-16

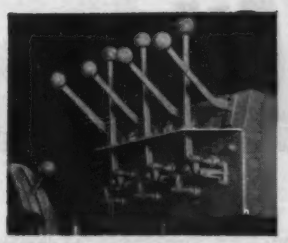
than on any other ½-yard crawler!



This is a fact: more "big machine" features are *standard equipment* on the MICHIGAN C-16 than on any other ½-yard crawler. It will pay you to look underneath — look inside to see how much more you get for your money.

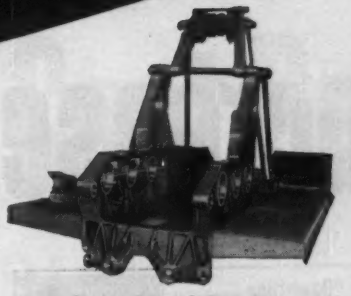
This machine is built for quality-conscious users—for bigger yardage, bigger tonnage, and substantially lower maintenance. The C-16 invites a feature-by-feature comparison with other same-capacity machines.

Write for detailed literature on this ½-yard crawler with big machine features and durability. Or contact your local MICHIGAN distributor. Like all MICHIGAN machines, the C-16 is available on a low-cost Lease Plan—details available.



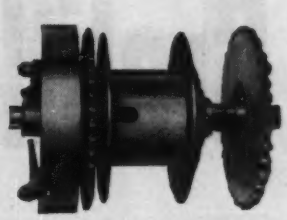
Power Control Independent Travel

Air Controls are standard on all MICHIGANs . . . fast, smooth, precise, with low operator fatigue. Independent Travel is also standard . . . move up while hoisting, swinging, or dumping.



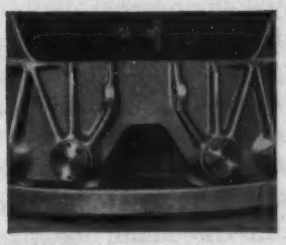
Cast Steel Deck

This feature is usually found only on 1-yd or larger machines. C-16 deck is one-piece, alloy steel casting . . . side frames, boom foot lugs and roller brackets are cast integral. No misalignment!



Power Load-Lowering

Four shafts on the C-16: Swing, Hoist, Travel and Crowd . . . each with its independent clutches. For precision crane work, the hoist line can be reeved on the front drum to provide Power-Up and Power-Down.



Six Hook Rollers

You can swing the boom just by leaning against it. There are 6 ball bearing-mounted adjustable hook rollers on the C-16 . . . grease twice a year. Most other ½-yd machines have only 3 or 4 rollers, bushing-mounted.

Smooth Clutches

There's nothing smoother than MICHIGAN air-operated segmented disc clutches . . . and they are self-compensating for heat, self-ventilating and self-cleaning. All segments are interchangeable.

Cast Steel Car-Body

Circle gear, with hook roller paths, internal gear teeth, center post, and crawler drive gear case is cast integral. Standard alloy steel tracks are 20″ wide, 9′10″ long. Swamp pads are optional: 30″ wide, 11′10″ long.

CLARK EQUIPMENT

CLARK EQUIPMENT COMPANY, 390 Second Street, Benton Harbor, Michigan. (21A)

Construction Machinery Division

Phone: WA 6-6184

Name_____

Firm_____

Please send literature:

☐ C-16 Detailed Bulletin

Address_____

☐ MICHIGAN Lease Plan Bulletin

City_____ Zone____ State____

US RUBBER

UNITED STATES RUBBER COMPANY
COMPLETES IMPORTANT
4-YEAR TRUCK TIRE PROJECT. *Results...*

Much Less Downtime...
Greatly Increased Mileage...

"Downtime practically eliminated"

says P. Correale, Correale Construction, Hazleton, Pa.

"There's no tougher test for tires than anthracite coal stripping. A tire failure here can knock out a truck for a full 7-hour shift—*for a $400 loss.* With their terrific carcass strength, U. S. Royral Con-Trak-Tors have *practically eliminated* our downtime."

"A 32% increase in mileage"

says Ben Gertiula, A. A. Kerry Logging, Taft, Ore.

"Our trucks haul timber out of the forest, over steep mountain roads to the mill. We tried 8 different makes of tires on the job. Now we use U. S. Royal Fleetmasters, because they average a *32% increase in mileage* and 2 more recaps!"

From leading truckers of every type and size, all across the land, comes *evidence* of the outstanding performance of the new U. S. Royal Truck Tires—the result of a determined 4-year project recently completed by U. S. Royal engineers.

The three results of this project most frequently mentioned by truckers are: 1) *much less tire downtime;* 2) *greatly increased tire mileage;* 3) *far lower cost per tire mile.*

Exclusive U. S. Royal processes account, in the main, for these important results. Patented INFRA-RED ray treatment prevents groove-

U.S.

☐ MICHIGAN Lease Plan Bulletin City Zone State

"Tire costs below a mill-per-mile"

says Guy Cooper, Cooper-Jarrett, Motor Freight, Chicago

"In a multi-million mile operation like ours, a fraction of a mill-per-mile means real savings. Our most recent records show that U. S. Royal Fleetways have enabled us to keep our tire costs below a mill-per-mile..."

Far Lower Cost Per Mile!

cracking. Special ROYAL CORD processing pre-stretches the Nylon or Rayon, reducing "tire growth" while maintaining the cord's natural shock absorbing strength. Exclusive PYRAVIN bonding solution surrounds each individual cord—fortifies it against heat and friction.

Today—no matter what your trucking job—there is a U. S. Royal Truck Tire capable of doing it better and at lower cost. And wherever you go, there is a U. S. Royal Dealer to give you expert tire service. Ask him to show you *why* truckers report they're *well ahead* with U. S. Royal!

ROYAL TRUCK TIRES

optional sizes of tires; hydraulic steering; 12 and 13-ft moldboards; electric starter, battery and generating unit; hydraulic foot-operated service and hand-operated mechanical parking brakes on drive shaft; and an upholstered seat.

The same attachments and auxiliary equipment will be available for the torqe-converter models, as have been for the manual-shift models. AUSTIN-WESTERN CO., 601 FARNSWORTH AVE., AURORA, ILL.

Heating-Air Conditioning Unit Said to Operate Quietly

A new combination heating and air conditioning unit is reported to be only two-thirds the size of other makes of the same capacity.

Available in 2-ton, 75,000 Btu and 3-ton, 105,000 Btu sizes the conditioners feature a blower with resilient mounts.

According to the manufacturer, the blower operation transmits no noise or vibration to the cabinet, and the ordinary bang and crackle heard when the heating unit goes on and off is entirely eliminated by a special heat exchanger.

Over-all silence of operation is said to be gained from another feature—a resiliently mounted refrigeration chassis. This chassis, which is free from metal-to-metal contact, is installed at the same time as the furnace section, or later when the addition of the summer air conditioning refrigerated unit is desired.

This latter feature makes the unit acceptable for project work where all homes are not air-conditioned at time of construction. The unit is designed to be sold as a furnace section and cabinet only, or as a complete summer-winter conditioner. When it is sold as a furnace section, the refrigeration section can be added at any future date.

Furnace controls have a 24-v diaphragm gas valve, fan and limit controls. The unit is designed for zero clearance sides and rear, and contains a large air-filter area. Glass fiber insulation lines the entire cabinet to reduce condensation and noise transmission.

To change from summer to winter operation, all that is required is a flip of the thermostat switch. A General Controls heating-cooling thermostat is supplied, which incorporates on-off operation in addition to a fan selector switch for continuous or intermittent operation. UTILITY APPLIANCE CORP., 4851 S. ALAMEDA ST., LOS ANGELES 58, CALIF.

Form Vibrators Deliver 10,500 vpm

A side form vibrator attachment, for use on concrete pavement construction, is designed for mounting directly on 12 or 24-ft Jaeger or Blaw-Knox concrete spreaders and 12 or 24-ft Jaeger, Blaw-Knox or Heltzel finishers. It is also adaptable to telescoping type finishers.

According to the manufacturer, vibrators can be mounted as much as 15 in. in from the side forms and still vibrate concrete at the forms, leaving it free from honeycomb.

The attachment consists of two concrete vibrators, spring mounted on a shaft and hanger assembly. The vibrator heads, raised or lowered by means of a hand lever, ride below the

Trailer Has Interchangeable Decks

Economies in transporting equipment are reported possible with a new component design in trailers. Use of a standard removable gooseneck and removable axle units permit interchange of decks of various lengths and design for greater flexibility with different load types. The DW-21 scraper above is being hauled on a model TD-25-RG-RA trailer. In this case the removable gooseneck and axle units are attached to a 13-ft deck with telescopic side extensions. Talbert Construction Equipment Company, 7950 W. 47th Street, Lyons, Illinois.

Eimco Tractor with Eimco loading attachment working in hard rock in Africa. This is the type of work on which Eimco tractors were tested for more than two years — no more abusive test can be found. That is why:

Eimco's Confidence in New Tractor is Backed by One Year Warranty

Eimco's tractor with its 124 Horsepower Cummins Diesel Engine has numerous features that make it an entirely new tractor. Each of these features have been put into the machine in order to do a number of important things for the user. First, to make it foolproof; second, to make it strong; third, to design it so that maintenance would take a fraction of the time required for the same operation on a conventional tractor; fourth, to make the tractor so easy to operate and so maneuverable on the job that any operator could do from 30 to 40% more work per shift and be less fatigued when the shift was complete.

The Eimco 105 Tractor

Operators of crawler tractors agree that the toughest kind of service to which a crawler tractor can be subjected, the service that will reduce the life span of a tractor to a minimum, is produced by mounting an overhead loading attachment on the frame of the tractor. Conventional tractors are not designed to withstand the unusual stresses, the vertical loads and the rolling, twisting forces produced by such an attachment which, in many cases, may subject the tractor to loads in excess of its own original weight. On the other hand, **Eimco's tractors are built specifically to take these unusual loads and perform with maximum efficiency.**

Hundreds of thousands of hours have now been worked by these Eimco 105 tractors in doing the type of loading job "not recommended" by other tractor manufacturers — **Eimcos are always the SAFE bet.** In loading rock, breaking out semi-consolidated molten slag, digging in unbroken red clay, and many other difficult jobs, the Eimco has proven its ability to meet requirements.

This is the tractor Eimco is confident will build its own reputation in the crawler tractor field, backed up by Eimco's One Year Warranty.

Customers who have used the Eimco 105 under these conditions have substantiated their satisfaction by repeat orders.

There are many reasons why the Eimco tractor gets quick acceptance.

THE EIMCO CORPORATION
Salt Lake City, Utah—U.S.A.

Prospective purchasers have taken advantage of Eimco offers.

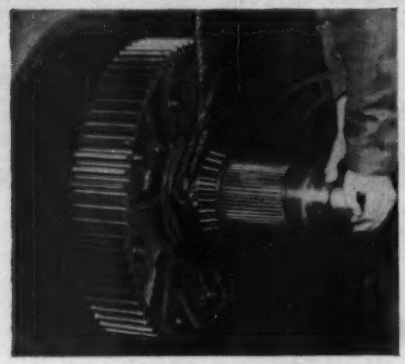
1. **Test the machine on their own jobs.** Contractors and industries who have arranged for trial performances, in every case, have ended up as buyers.

2. **Visit the Eimco manufacturing plant.** Representatives of contractors, industries, municipalities and numerous others have gone away convinced that Eimco really had something new in tractors, that they had the most modern manufacturing facilities and know-how to produce this new machine that marks an epoch in tractor design.

Here are some of the impressive features that convinced the trial user and plant visitor.

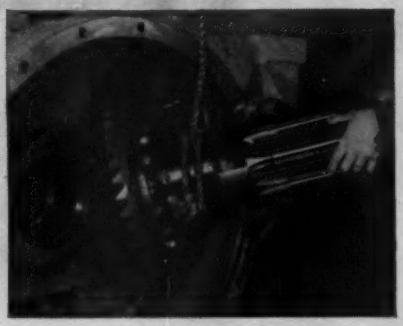
FINAL DRIVE PARTS

All parts of the final drive can be removed through the cover plate opening.



Notice the short length of the main drive shaft, notice the large diameter. This is a solid alloy steel shaft of the toughest type for impact resistance.

Compare these Eimco shafts with average size shafts used in conventional tractors where shafts are long and assemblies are complicated by using the usual method of installing clutches, brakes and all the necessary operating linkages in the final drive housing.



The pinion shaft is heavy and short. The bevel gear is bolted to a hub which is pressed on the pinion and forms a simple heavy assembly.

The master clutch is completely eliminated in the Eimco design and therefore one of the great sources of tractor troubles has been banished forever.

One of the greatest contributions to the industry is Eimco's approach to the design and construction of the 105 track assembly, especially the rollers, front idler and sprocket.

The track assembly on the Eimco Tractor. Alloy steel parts are used throughout.

These parts have already been given considerable general explanatory treatment. Here is the reason the Eimco 105 tractor can be offered with such confidence. In tests, the Eimco has been operated side by side with well known popular brand tractors. In many of these tests, the high maintenance on the competitive equipment was first apparent in the track assemblies — **the Eimco parts keep operating month after month with a minimum of attention.**

Each of these pieces is made from one piece alloy-steel castings. Each of these pieces is carefully heat-treated in the Eimco Spintrete

The Eimco Spintrete furnace where wearing surfaces are given special treatment for extra long life.

furnace. This produces a hardness of sufficient depth and strength on all wearing surfaces to insure long life and a good tough core to resist shock and fatigues.

These are a few of the important features that provide many times the operating life of conventional equipment in the crawler tractor field. These are the reasons Eimco confidently offers to back their tractor in a way that no other tractor manufacturer does.

Do you want better labor relations? Do you want to make more money on your contract job? Is it important to you to carry a smaller parts inventory for tractor equipment? Can you be interested in buying a better product for less money? If you are, Eimco tractors give you the answer. Take better labor relations — an Eimco 105 tractor operator can do more work for you with less effort.

Maintenance crews are happy to find the Eimco Tractor requires a minimum of repair. Yes, better equipment means better labor relations both of which put more dollars in your pocket.

Are you planning to buy a tractor? If so, investigation of the Eimco Tractor is a MUST before you reach any decision. Eimco invites you to see this new tractor, operate it yourself. **This is a tractor that Eimco is proud to have you inspect and compare.**

You will agree with Eimco that the quality construction justifies the liberal one year warranty on the Eimco Tractor.

If you have missed Numbers One and Two of this series, just drop Eimco a line for your free copies.

B-105

THE EIMCO CORPORATION

Salt Lake City, Utah—U.S.A. • Export Offices: Eimco Bldg., 52 South St., New York City

New York, N. Y. Chicago, Ill. San Francisco, Calif. El Paso, Texas Birmingham, Ala. Duluth, Minn. Kellogg, Ida. Baltimore, Md. Pittsburgh, Pa. Pasadena, Calif. Houston, Texas London, England Gateshead, England Paris, France Milan, Italy Johannesburg, South Africa

surface of the concrete. Heads are adjustable for depth, angularity and side spacing by loosening two bolts, and there are no flexible shafts or external drive units. Spring mounting of the heads is said to prevent transfer of vibration to the machine.

Each vibrator head contains a 120-v, 180-cycle squirrel-cage induction motor, direct-connected to an eccentric weight capable of delivering up to 10,500 vpm.

A gasoline engine-driven generator, resiliently mounted on the platform of the spreader, supplies current to power the vibrators, as well as floodlights and maintenance tools when needed. Vibration frequency can be varied by adjusting engine speed.

The vibrators are controlled from the operator's position by an off-on switch. An outlet is provided for vibrating across transverse joints.

The attachment is supplied as a package, complete with generator, two vibrators and all necessary mounting brackets, hardware and cables, ready for installation. MAGINNISS POWER TOOL CO., MANSFIELD, OHIO.

Central Control Sends Signals Over Existing Wires

A central control system has been designed that follows preset programs and automatically switches on or off up to 40 groups of remote operations —each on its own time schedule.

Described as an "electronic supervisor," the new system provides economical remote control of facilities such as lights, air conditioning and valves within a plant or building.

By superimposing electronic pulses of from 2,106 to 19,000 cycles on the electrical distribution system, the same lines which provide 60 cycle current for operation of numerous electrical devices can be used to transmit remote control signals. Thus, the electrical current which causes a motor to turn, or a valve to open, carries with it its own start and stop commands. These commands, originating in a flexible central operations panel, may be programmed automatically on a schedule designed to provide optimum efficiency in the operation of electrical facilities.

Another feature of the system is that time recording and time indicating equipment, including secondary wall clocks, may be automatically synchronized with a radio controlled master clock supervised by the National Bureau of Standards radio time signals. INTERNATIONAL BUSINESS MACHINES CORP., 590 MADISON AVE., NEW YORK 22, N. Y.

...masonry water repellents made with G-E DRI-FILM® silicones

No wonder masonry water repellents containing silicones have become the standard in the industry!* They offer *lasting* protection against the Water Menace because they're *erosion resistant!* They provide "defense in depth"—penetrate masonry pores deeply to keep water out—yet permit masonry to "breathe"!

Masonry water repellents made with General Electric DRI-FILM silicones prolong the life and preserve the beauty of structures, old and new. Easily applied, they retard spalling and cracking, control efflorescence and keep surfaces cleaner.

Ask your water repellent supplier about a treatment based on G-E DRI-FILM silicones! For the names of suppliers using DRI-FILM in their products, just write to General Electric Company, Section 155-2C, Waterford, New York. (IN CANADA, write to Canadian General Electric Company, Ltd., Toronto.)

**Sales by suppliers have jumped almost one million dollars each year since 1950!*

Paint and Chemical Manufacturers!

DRI-FILM silicones offer you a profitable opportunity to add a superior masonry water repellent to your product line. Ask us about DRI-FILM 103, a new G-E silicone with important manufacturing advantages!

G-E silicones fit in your future

GENERAL ELECTRIC

A KERRIGAN
Grating for Every Need

A CATALOG
for every Grating

Write for your

Copy NOW!

STEEL
for the 1001 applications where safety and strength come first. Kerrigan Steel Grating is BONDERIZED for corrosion resistance and extra years of life.

STAINLESS and MONEL
non-magnetic steel for the chemical, oil and packing industries . . . for ANY installation where high resistance to heat, acids, chemicals, and corrosion is needed.

TRULY . . .

In both size and type, there is a Kerrigan Weldforged grating for every need. Let our new catalogs prove it to you. Send for the one you think best answers your need (or ask for ALL FOUR if you wish). We will also be glad to send you a desk-size grating sample. Write Kerrigan Iron Works, Inc., General Sales Office, 274 Madison Ave., New York City.

RIVETED STEEL
where it is desired to match existing grating.

ALUMINUM
spark-proof for those whose need is strength AND lightness. Extra safe and strong. Allowable fiber stress 15,000 psi. Modulus of elasticity 10,000,000 psi.

KERRIGAN GRATING
CUSTOM-MADE FOR YOUR JOB and SAFE—it's

PUBLICATIONS

Concrete plants—Illustrated by more than 90 photographs, diagrams, drawings and charts, a 44-page technical book covers all phases of planning new concrete plants, modernizing or expanding existing plant facilities. The introductory text contains suggestions for analyzing market potential, population areas, source of material-supply, power and other factors to be considered in location of concrete plants. A series of plan views illustrate typical plant sites with relation to transportation facilities and ground-storage area. Another part of the book discusses eight different types of concrete plant installations. Other sections are devoted to latest developments in plant automation, batching, cement storage and aggregate-handling equipment.—C. S. Johnson Co., Champaign, Ill.

Hydrants—A 16-page catalog on nonfreezing ground and wall-type hydrants is designed to help engineers, builders, plumbing contractors and other specifiers select the correct hydrant for every type of installation. Pictured and described in detail are models of each of four types of hydrants including wall installations, post and box type and encased hydrants. Included in the manual is a brief discussion of maintenance procedure and recommended stock items for replacement of worn parts. Manual 54-5.—Plumbing Div., J. A. Zurn Mfg. Co., Erie, Pa.

Paint specifications – Dutch Boy's Standard Guide Specifications 1955 for the painting of structural elements introduces a simplified tabular form for quick reference and easy use by architects, engineers and contractors. The Guide, which appears in the current Sweets Architectural File, covers description, use, specifications, formulas and applications of the complete line of the company's paints, enamels, and varnishes. Room 1815, National Lead Co., 111 Broadway, New York 6, N. Y.

Duct floors – A 16-page booklet entitled "Electrical Outlets Wherever You Need Them" gives details on R/C duct floors, a development that provides electrical flexibility for buildings at low cost. As explained in the bulletin, the floors consist of standard reinforced concrete joist floors with a network of electrical distribution ducts buried in the structural slab. With this type of construction, no special concrete fill is required. Technical specifications are included for the convenience of architects and structural

Fiberglas Acoustical Form Board

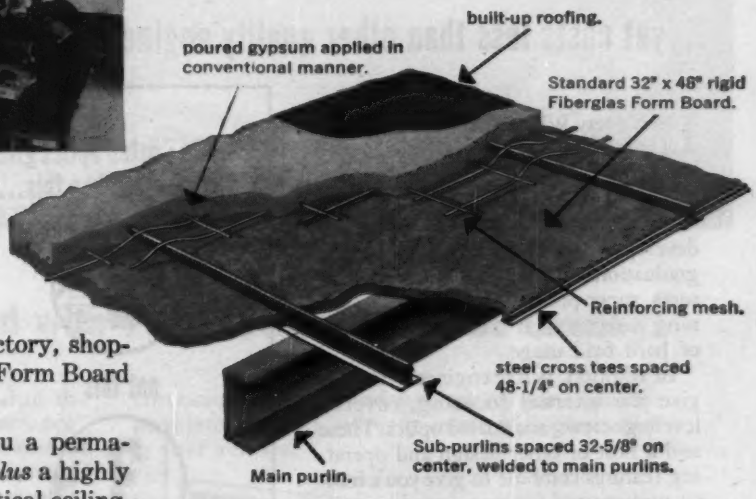
gives your roofs

two big extras at one low price!

In a Class by itself: fire-safe, inorganic Fiberglas Acoustical Form Board with gypsum concrete keeps light structures snug, safe, quiet—eliminates cost of ordinary acoustical ceiling. Has N. R. C. of .75.

Extra #1.
A fire-safe acoustical ceiling

Extra #2.
A highly efficient insulation


built-up roofing.
poured gypsum applied in conventional manner.
Standard 32" x 48" rigid Fiberglas Form Board.
Reinforcing mesh.
steel cross tees spaced 48-1/4" on center.
Sub-purlins spaced 32-5/8" on center, welded to main purlins.
Main purlin.

Bucking a building budget for school, factory, shopping center? Consider Fiberglas* Acoustical Form Board as your solution.

Fiberglas Acoustical Form Board gives you a permanent, dimensionally stable form board . . . *plus* a highly efficient insulation . . . *plus* a fire-safe acoustical ceiling. Yet Fiberglas Acoustical Form Board costs no more than an acoustical ceiling alone!

It's easily installed with gypsum in flat, curved or pitched roof framing. Ceiling surfaces are Fiberglas and paintable.

Specify triple-duty Fiberglas Acoustical Form Board for schools, factories, shopping centers, all similar structures . . . get *two big extras* at one low price! For full technical data write Owens-Corning Fiberglas Corporation, Dept. 145-D-14, Toledo 1, Ohio.

OWENS-CORNING
FIBERGLAS

*Fiberglas is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation.

SOUND CONTROL PRODUCTS • ROOFING INSULATIONS • ELECTRICAL INSULATIONS • DUCT INSULATIONS • LOW TEMPERATURE INSULATIONS

The man behind the gun will tell you . . .

WHITE GIVES YOU greater, longer-lasting precision–

Shown, model 7014 with "A" standard. Sold complete with tripod case and field equipment. Model 7020, same unit with "U" standard, also available.

. . . yet costs less than other quality engineers' transits

LIKE every White quality-built instrument, these engineers' transits give you greater dollar-for-dollar value than any other comparable unit.

For example: White uses a recently-developed Swiss Dividing Engine to cut graduations into solid silver. This insures super-precision from the beginning, safeguards it through more years of hard field usage.

In addition, White engineers' transits give you internal focusing, covered leveling screws, and coated optics. These and a host of other design and operating features combine to give you a transit unsurpassed for ease, speed, accuracy, economy and long-lived dependability. Write for Bulletin 155 and the name of your nearest dealer. DAVID WHITE COMPANY, 317 W. Court Street, Milwaukee 12, Wisconsin.

White Coated Optics give you an image like this...

not this

Even at long distances under adverse weather conditions, you get a clear, sharp image — without halation.

DAVID WHITE COMPANY

We offer expert REPAIR SERVICE on all makes, all types of instruments.

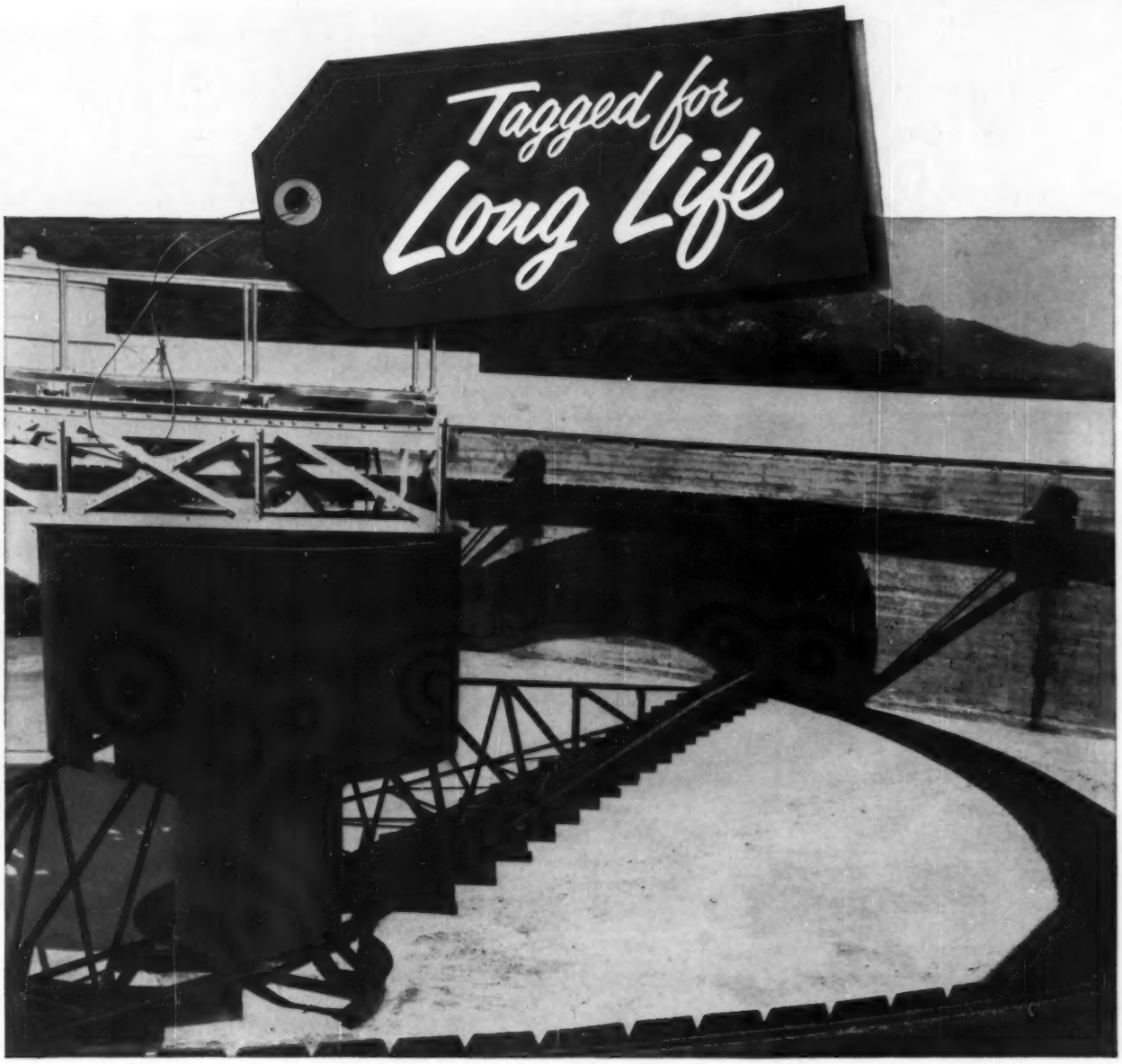
engineers. — CONCRETE REINFORCING STEEL INSTITUTE, 38 S. DEARBORN ST., CHICAGO 3, ILL.

Wire rope—"Handling and Care of Wire Rope for Longer Service Life" is the title of a 40-page booklet designed to help users of wire rope to save money on maintenance through proper installation. Sections of the booklet include common causes of wire rope abuse, sizing of sheave and drum diameters, checking groove diameters, unreeling and uncoiling wire rope, seizing and cutting wire rope ends, attaching wire rope sockets, lubrication and cleaning of wire rope, and a picture story of splicing. The last three pages show dimensional drawings of splicing tools so that the user may make his own. — BETHLEHEM STEEL CO., BETHLEHEM, PA.

Cement specifications – A technical bulletin published for architects and builders contains specification data and details for proportions and mixing Medusa high early strength portland cement. Specific examples are given for use of this type III portland cement and illustrations show examples of construction employing this material. The catalog discusses the salient features of the portland cement and gives Federal and ASTM specifications that it meets. — MEDUSA PORTLAND CEMENT CO., 1000 MIDLAND BLDG., CLEVELAND 15, OHIO.

Toilet compartments—Toilet compartments are illustrated in the actual colors available in a new 28-page catalog. On the same pages, engineering drawings, itemized descriptions and complete specifications provide architects and engineers with the details needed for installation planning. Actual photos of completed installations are also included. Catalog 92 (AIA File 35-H-6), THE SANYMETAL PRODUCTS CO., INC., 1701 URBANA RD., CLEVELAND 12, OHIO.

Concrete equipment—A new 16-page catalog, No. 552, illustrates the line of Stow concrete equipment. Data is given on their universal electric and gasoline concrete vibrators, portable concrete grinders, gasoline and electric rotary trowels, and concrete vibrating screeds. For the contractor who wants to build his own screed using the company's package assembly, complete directions on "How to Build Your Own Pre-Stressed Screed Beam" including a drawing, are printed on the back page of the catalog.—STOW MFG. CO., 19 SHEAR ST., BINGHAMTON, N. Y.



. . . because it's protected with PITT CHEM® Tar Base Coatings

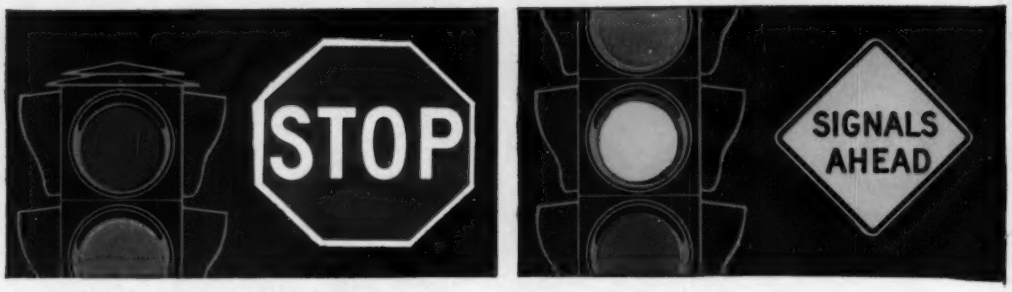
THIS water system clarifier tank is getting the right start in life. It's being given "life insurance" with Pitt Chem 103 Tar Base Coating—one of the toughest and most durable protective coatings ever developed to stop water and sewage plant corrosion.

Pitt Chem Tar Base Coatings outlast ordinary paints by many times. Yet they cost no more per gallon. They are easy and economical to apply and form a tight, lasting bond with metal, masonry, concrete and stone.

Here's the story in a nutshell: *No other material does such a complete job of protection at so little cost.* If you want to stop water sewage corrosion—and reduce costs in the bargain—call for a Pitt Chem corrosion engineer today to survey your specific problems. A call, wire or letter will place him at your service.

W&D 5458

COAL CHEMICALS • AGRICULTURAL CHEMICALS • FINE CHEMICALS • PROTECTIVE COATINGS • PLASTICIZERS • ACTIVATED CARBON • COKE • CEMENT • PIG IRON



In The State of Washington...

"SCOTCHLITE" commands

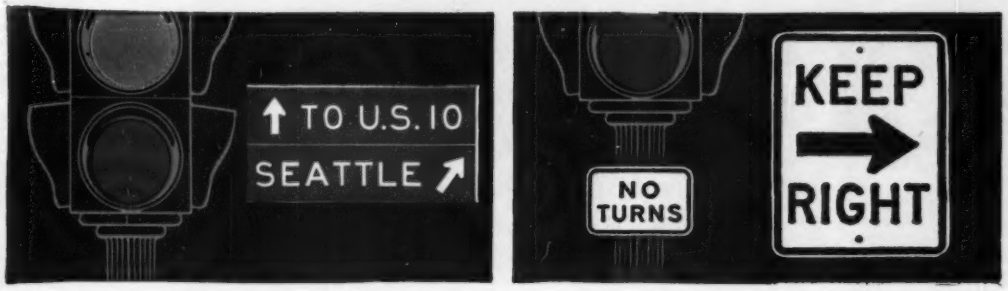
REFLECTIVE SHEETING

4-Color Reflective Sign System for Day and Night Traffic Control

The state of Washington uses a thoroughly modern *color-coded* traffic signing system that works with efficiency *both by day and by night!* It is also available to you, for an effective solution to *your* traffic problems, with "Scotchlite" Reflective Sheeting in four brilliant key colors drawn from the traffic spectrum. Colors that are known and associated with specific action by motorists across the nation.

Signs made with smooth, easy-to-clean Wide Angle Flat-Top® "Scotchlite" Reflective Sheeting direct traffic flow smoothly and safely with the added authority of reflective color. At night, as well as by day, the command of each sign is

Saves Lives Even When Twisted or Bent! Wide Angle Flat-Top® "Scotchlite" Reflective Sheeting gives clear, sharp visibility of shape, color, and legend at extreme angles. Even when signs are twisted by accident or bent by vandals, "Scotchlite" Sheeting is *effective* . . . at night as well as day, in all kinds of weather. And the flat, smooth surface is easy to maintain, practically self-cleaning.



attention . . . in 4 colors!

TO U.S. 10
SEATTLE
SPEED LIMIT 60
GREEN for GO ...shows distance and direction.
WHITE...for street and highway traffic REGULATIONS.

recognized far ahead, by both shape and color, even before the message becomes legible. Accidents are prevented. Streets and roads are made safer . . . transportation is made simpler . . . motoring more enjoyable.

Investigate the advantages of a four-color signing system using Wide Angle Flat-Top "Scotchlite" Reflective Sheeting. It's the modern way to step-up safety and sharpen the day-and-night legibility of the traffic control signs on your streets and roads.

For free color-coded scale model signs made of "Scotchlite" Reflective Sheeting, write to: Minnesota Mining & Mfg. Co., Reflective Products Division, Dept. ENR-45, St. Paul 6, Minn.

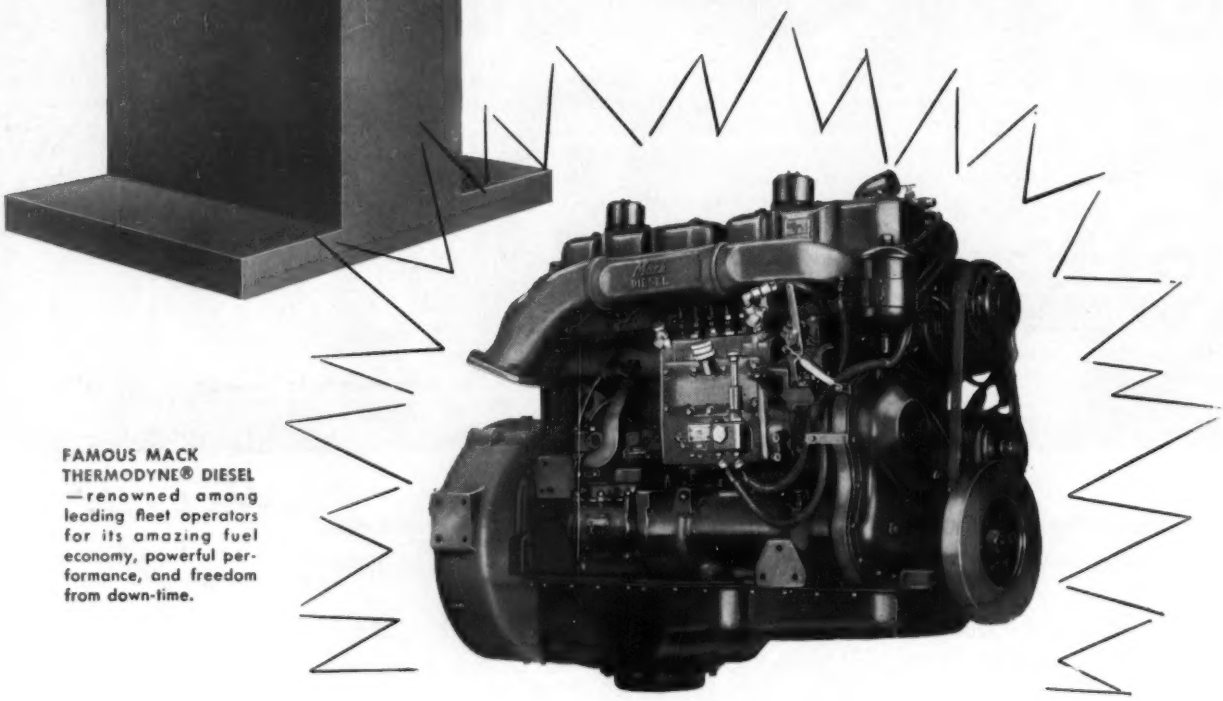
WIDE ANGLE FLAT-TOP®
REG. U. S. PAT. OFF.

SCOTCHLITE
BRAND
REFLECTIVE SHEETING

The terms "Scotchlite" and "Flat-Top" are registered trademarks of Minnesota Mining & Mfg. Co., St. Paul 6, Minn. General Export: 99 Park Avenue, New York 16, N. Y. In Canada: P. O. Box 757, London, Ontario.

STILL 1st ... IN DIESEL TRUCK SALES

MACK



FAMOUS MACK THERMODYNE® DIESEL —renowned among leading fleet operators for its amazing fuel economy, powerful performance, and freedom from down-time.

During 1954 operators again bought more Mack diesel-powered trucks than any other make.

What's more—for '54 Mack earned an even larger share of the market—30.74% of all diesel truck sales—every year a greater share than the year before.

The reasons for Mack's increasing diesel sales and continued top-ranking position are not hard to find. Throughout the nation, operators—large and small—hail the unrivalled fuel economy, reliability and efficiency of the Mack Thermodyne Diesel engine.

No other engine introduced in recent years has met with such enthusiastic owner preference. No other engine gives such big savings in more miles per gallon, less down-time and stand-out performance. A worthy inheritor of the famous Thermodyne name, this great diesel has surpassed even the highest expectations of its manufacturer.

Ask any user of the Mack Thermodyne Diesel. His experience explains why, more and more, the swing is to Mack.

MACK TRUCKS Empire State Building, New York 1, N. Y. 3044

MEN AND JOBS

E. G. Nielsen

Reclamation Official Named To Post in Washington, D. C.

Edwin George Nielsen has been named by the Bureau of Reclamation as Assistant Commissioner for Irrigation and Power. He was formerly director of the bureau's Region 3 with headquarters in Boulder City, Nev. J. P. Jones has succeeded Nielsen as acting regional director.

Nielsen joined the chief engineer's staff in the bureau's Denver office in 1934 and was later transferred to Salt Lake City to take charge of the planning office. Returning to Denver in 1942, he became chief of the hydrology division and in 1945 was transferred to Region 3 as regional planning engineer. Following the retirement of E. A. Moritz in 1952, he was appointed regional director.

Before joining the bureau, Nielsen spent three years as associate engineer at the Keokuk hydroelectric station on the Mississippi River, three years with Stone & Webster Engineering Corp., and a year with the Missouri Public Service Commisison in electric utility valuation work. He is an engineering graduate of the University of Iowa.

Jones, a civil and irrigation engineering graduate of Colorado A & M College, started his career with the bureau on the Minidoka project in Idaho in 1927. He later worked on the Yakima project in Washington, Hoover Dam, the Gila project, Coachella canal and distribution system, Friant Dam, and the San Diego Aqueduct. In 1945, he was transferred to Region 3 as assistant regional director.

Ralph Johnson Appointed NAHB Construction Chief

Ralph J. Johnson, chief of housing hygiene activities, U.S. Public Health Service, joined the National Association of Home Builders this week as director of the Construction Department and Research Institute. He succeeds Leonard G. Haeger, now technical director for Levitt & Sons, Levittown, Pa. (ENR March 10, p. 70).

Johnson has been in the housing field for the last 10 years, first on construction and maintenance of numerous war housing projects, and later in the field of housing hygiene. Earlier in his career, he was chief sanitary engineering officer for the city of Peoria, Ill.

Johnson is a member of the National Housing Research Council and the Construction Standards Board of the American Standards Assn., and is a consultant to the Housing Committee of the Conference of State Sanitary Engineers. He holds a bachelor's degree in civil engineering from the University of Illinois and a master's degree in sanitary engineering from Harvard University.

New Transportation Award In Memory of E. A. Sperry

An award for engineering achievements in transportation has been established in memory of Elmer A. Sperry, engineer and inventor noted for his practical applications of the gyroscope.

Administered by the American Society of Mechanical Engineers, the award will be given in recognition of "a distinguished engineering contribution which through application, proved in actual service, has advanced the art of transportation whether by land, sea or air."

The recipient may be an individual or a group and will be selected by a board representing ASME, AIEE, SAE and the Society of Naval Architects and Marine Engineers.

Bridge Engineer Retires From State Highway Post

Stewart Mitchell, principal bridge engineer, has retired from the California Division of Highways, after 31 years of service with the bridge department.

His highway career began in Oregon, where he served as a resident engineer with the State Highway Department following his World War I service as a captain in the 306th Engineers.

NEW!
PROPANE
GAS BURNING
FLOODLIGHT
6000 C.P.

- Rugged, weatherized, easily portable, simple to operate, lights with a match.
- Burns 47 to 150 hours on 20 lbs. of gas. Adjustable gas pressure, ½ lb. to 15 lb., varies light to suit job. White light 6,000 c.p. Easily connected to standard 20 lb. gas tanks.
- Height, 48", including tank. Reflector diameter, 14". Weight, including full tank, 64 lb.
- Price $102.50 F.O.B. Chicago. Includes all equipment shown except gas tank. Also available on 4 to 8 ft. telescopic stand, $125.

Dealer Inquiries Invited

WRITE, WIRE OR PHONE
WM. W. LEE and SON
20 EAST JACKSON BLVD.
CHICAGO 4, ILLINOIS
Phones: HArrison 7-7592
HArrison 7-1720
Cable: Leelights

"DISTRIBUTION OF LATERAL FORCES IN SMALL BUILDINGS"

By

LAWRENCE A. BRIGGS
& OSCAR M. BLOCH

2nd Edition

This book covers fully a simplified and accurate method of determining lateral forces, application of lateral forces and proportioning resisting elements of a structure for seismic and wind forces.

Book is priced at $3.50, plus postage, however, if ordered and paid in advance, book will be sent postpaid for $3.00. Either way, money back if not satisfied.

BRIGGS PUBLISHING CO.
Glendale 5, Calif.
P. O. Box 351

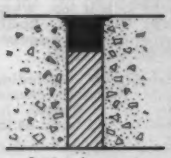
Send.....copies of 'Lateral Forces' to
.....
.....
.....

☐ Pymt. Enc. send postpaid
☐ Bill us later

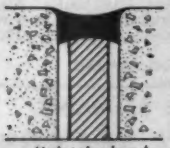
Stop JOINT SEAL FAILURES USE HOT POURED PARA-PLASTIC

• Keeps joint sealed under severest conditions of traffic, temperature

• May be pumped directly into joint from melting kettle



Resists bumps in warm weather



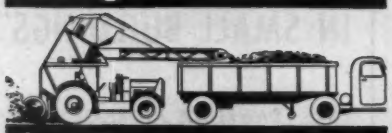
Maintains bond in sub-zero temperatures

Nothing equals the joint sealing performance and protection of Servicised Para-Plastic. Stable, constant in volume, Para-Plastic is a rubberized asphalt compound that maintains bond at normal and sub-zero temperatures. Field proven — widely used, it's the most effective joint seal on the market.

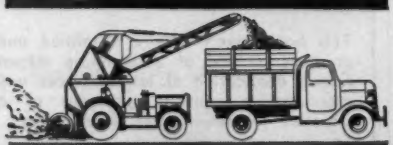
Write for details on Para-Plastic and simple, low cost application method.

SERVICISED PRODUCTS CORPORATION
6051 W. 65th ST., CHICAGO 38, ILL.

longest trucks



highest trucks



loaded FASTER with a BG LOADER

GET THE DETAILS. SEND FOR THIS FREE BOOK

see your B-G distributor or write

Barber-Greene
AURORA, ILLINOIS, U.S.A.

Mitchell joined the California Division of Highways as a field engineer in 1920 and three years later was moved to the central office in Sacramento. There he served successively, until his retirement, as bridge construction engineer, engineer in charge of bridge planning and design, and engineer in charge of special investigations.

A civil engineering graduate of Purdue University, Mitchell is a member of the American Society of Civil Engineers, the American Concrete Institute, and the International Association for Bridge and Structural Engineers.

Ora G. Baxter Retires From Federal Service

Ora G. Baxter, assistant chief of the Mississippi River Commission's operations division, retired last week, after completing 36 years of federal service as a civil engineer.

He has devoted most of his professional career to drainage problems and corrective measures, principally in the Lower Mississippi River Basin. Starting his federal service with the Department of Agriculture, Baxter later served with the Bureau of Public Roads and with the Vicksburg and St. Louis districts of the Corps of Engineers. In 1942 he was transferred to the Mississippi River Commission and was assigned to its operations division.

Baxter, who holds two degrees in civil engineering from Purdue University, will continue his engineering career as a consulting engineer.

Gordon McCallum Heads Up Water Pollution Program

The U. S. Public Health Service of the Department of Health, Education and Welfare has appointed Gordon E. McCallum, sanitary engineering director, as head of its water pollution control program.

McCallum has served with the Public Health Service for 20 years and has been chief of the Office of Health Emergency Planning since 1951. Previously, he had engineering assignments in the Atlanta, San Francisco and New Orleans offices and, during World War II, was chief engineer for the U. S. Office of Civilian Defense.

The sanitary engineering activities which McCallum will supervise in his new post embrace water pollution research, consulting services to states, and coopeation with interstate agencies, local governments and industries in pollution control.

Men and Jobs Briefs . . .

• **Corps of Engineers**—Assigned to the Office of Engineers in Washington, effective next July, are **Col. Carroll H. Dunn,** now director of the Waterways Experiment Station in Vicksburg, as Executive; **Col. George H. Walker** as Executive, Civil Works; **Col. Robert R. Ploger** as Chief, Military Personnel Division; and **Lt. Col. Howard W. Penney** as assistant chief of civil works for flood control.

Col. Andrew P. Rollins, Jr., now assistant engineer in Albuquerque, will become director of the Waterways Experiment Station in Vicksburg . . . **Lt. Col. Robert D. Hand,** recently returned from Korea, replaces **Col. Curtis T. Ricketts** as area engineer, San Antonio . . . **Col. Harold E. Sprague,** now assigned to the Japan Construction Agency, will succeed **Col. Ralph A. Lincoln** as district engineer in Pittsburgh in July.

• **Careers**—In a shakeup of New Mexico's State Highway Department, **Laurence D. Wilson** becomes state highway engineer, succeeding **C. O. Erwin,** who's been with the department since 1926 . . . **Edward V. Gant,** professor of civil engineering at the University of Connecticut, is appointed special assistant to Connecticut's state highway commissioner.

Evan Norton, of Winston-Salem, N. C., goes to Middletown, Pa., as public works manager . . . **Herbert W. Stevens,** becomes city planning director at Cincinnati, Ohio . . . **Vernon Peebles** resigns as city engineer, Raleigh, N. C., to join C. C. Mangum, grading contractors in Raleigh.

• **Business**—**Brig. Gen. James C. Marshall, (C. E., Ret.),** has joined Knappen-Tippetts-Abbett-McCarthy as engineer consultant on the firm's contract with the United Nations Korean Reconstruction Agency . . . **John H. Kelly** becomes chief of construction for The Oliver Rousseau Organization, California Bay Area home builders . . . **E. Alfred Picardi,** formerly structural engineer for Kaighin & Hughes, Inc., joins Bellman, Gillett & Richards, Toledo, Ohio, as an associate and chief structural engineer.

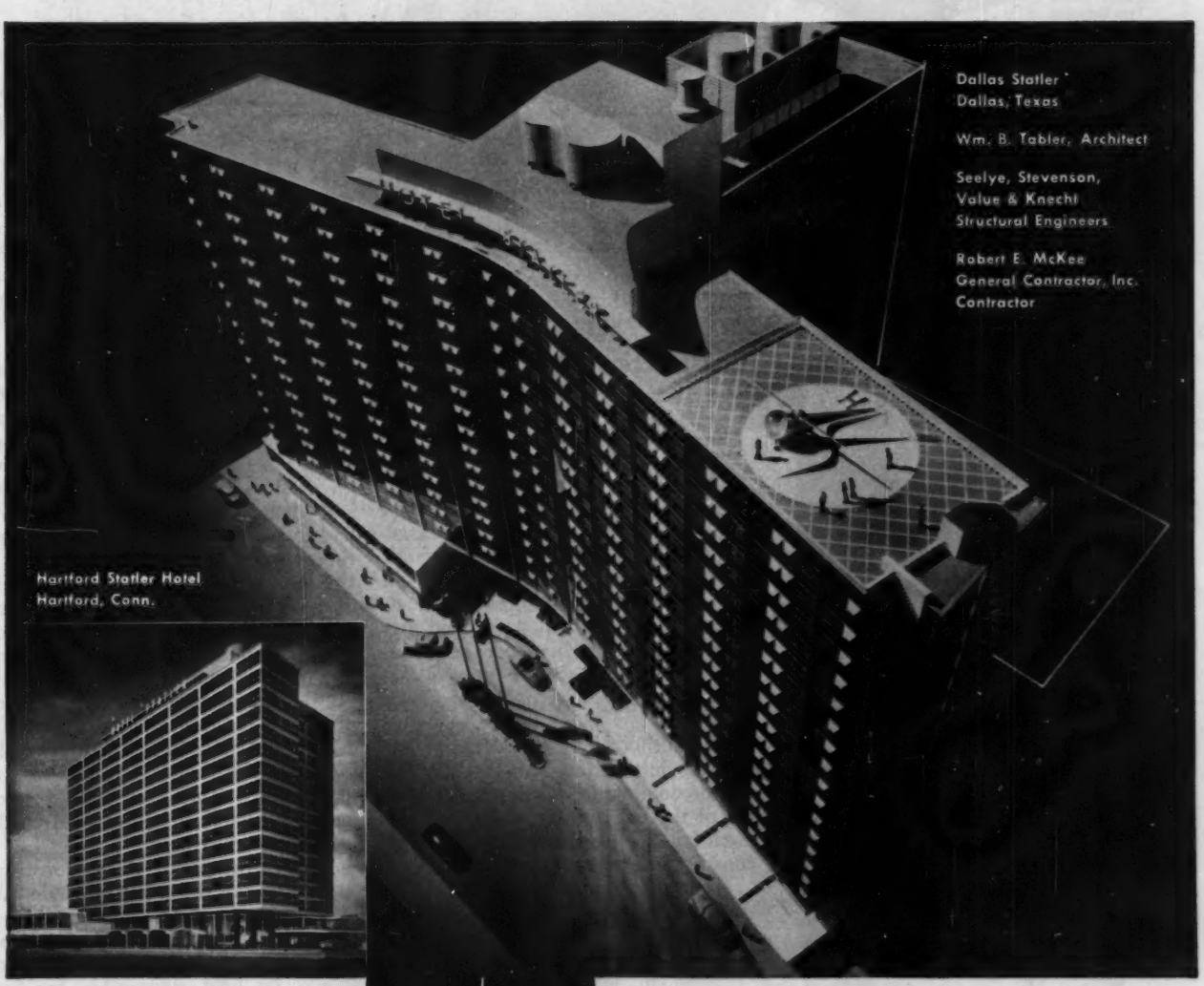
Eric Moorehead, who's been associated with **Ernest J. Kump,** San Francisco architect, establishes his own office in Berkeley, Calif., for the practice of structural engineering . . . **G. Edward Elsenhans,** former technical service engineer for Universal Atlas Cement Co., joins Metropolitan Sand & Gravel Corp., Port Washington, N. Y., as technical director.

Two more new Statler Hotels — the Dallas Statler and the Hartford Statler — have frames of reinforced concrete. The major factors which influenced Hotels Statler Company in their selection of reinforced concrete were lower costs and flexibility of design. The ingenious design of the 18-story Dallas Statler—using a two-column bay and flat-slab cantilever floors in conjunction with reinforced concrete—threw the cost estimate on guest-room wings entirely out of the usual "hotel" class into a far less expensive class.

On projects all over the country, reinforced concrete is providing better structures for less money. It is a flexible medium, inherently firesafe, and highly resistant to shock. Materials are readily available from local stocks. On *your* next job . . . design for reinforced concrete.

REINFORCED CONCRETE

helps to lower the cost of newest STATLER hotels . . .



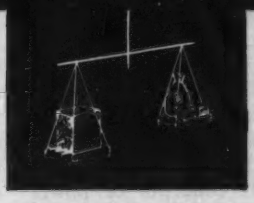
Dallas Statler
Dallas, Texas

Wm. B. Tabler, Architect

Seelye, Stevenson, Value & Knecht
Structural Engineers

Robert E. McKee
General Contractor, Inc.
Contractor

Hartford Statler Hotel
Hartford, Conn.



Compare...

YOU'LL SAVE
WITH REINFORCED CONCRETE

CRSI

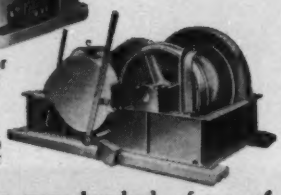
38 South Dearborn Street • Chicago 3, Illinois

CONCRETE REINFORCING STEEL INSTITUTE

"Superior" Electric

Carpullers

CAPSTAN TYPE, DRUM TYPE AND SPECIAL TYPES



Model SC Superior Capstan Carpuller

Model EP Drum Type Carpuller

One man can move hundreds of tons of rolling load with practically no effort. Economical, efficient, Carpullers are available for your specialized requirements.

Write for bulletins and catalogs!

Designed and Manufactured by

SUPERIOR-LIDGERWOOD-MUNDY CORPORATION

Main Office and Works: SUPERIOR, WISCONSIN, U. S. A.
New York Office, 7 Dey Street, New York 7, N. Y.

Plan To Produce Your Own Aggregate?

Consult EAGLE About Washing-Classifying Equipment!

Eagle pioneered concrete aggregate washing-classifying-dehydrating equipment, Eagle engineers have vast experience. Eagle has more installations than all other makes combined. Eagle has the broadest line. Nationwide factoryy trained sales-service organization.

EAGLE IRON WORKS
187 HOLCOMB AVE. DES MOINES, IOWA

Breaker Balls, Pile Hammers, and Line Weights.

BOOKS

Waste Disposal Charges

INDUSTRIAL WASTE DISPOSAL CHARGES IN CITIES OVER 5,000 POPULATION, Public Works Engineers' Special Report No. 18-S,—81 pp. APWA, 1313 E. 60 St., Chicago 37, Ill. $3.00.

In 18-S, the American Public Works Association presents a comprehensive survey of industrial waste disposal charges in cities polled. Information supplements data offered in the association's earlier release (Special Report No. 18) dealing with sewage service charges in comparable municipalities.

The industrial waste report contains a summary of data collected by APWA headquarters staff for presentation by the association's 1954-55 committee on sewage and sewage disposal.

It is presented in two parts: Industrial Waste Disposal Charges, dealing with various methods of charging and billing; and Industrial Waste Disposal Regulation and Related Data, covering permits, connections and volume, "objectionable" wastes, sewage meters, oil and grease separators, quality limitations, pre-treatment and frequency of testing quality of wastes.

Construction Management

CONSTRUCTION METHODS AND MACHINERY—By F. H. Kellogg. 415 pp. Prentice-Hall, Inc., 70 Fifth Ave., New York 11, N. Y. $10.00.

By approaching construction through the eyes of alert contractor management, Dean Kellogg's book transcends the "how-to-do-it" type of test on which colleges have had to depend. In going beyond the material that has been available, the book may help construction courses achieve the college-level prestige that seems to have been lacking.

The author notes, "An attempt has been made to bridge the gap between the predominantely deductive reasoning of the engineering school and the predominately inductive reasoning of construction practice."

Most essential to the book's pioneer spirit is Part One: "Operational management." The chapters, "Organization and Planning," "Control," and "Equipment Economics," deal with such vital subjects as labor productivity studies, overall production rate, operational flow and process charts, as well as observation and statistical analysis of performance. "Equipment Economics" leads into a discussion of the fundamental concepts of power and the factors that influence the choices of power-source types. Electricity, little-understood by many contractors as a possible source of construction power, is well covered.

Power, of course, introduces Part Two: "Machinery," which is broken down into three major categories: Transportation, hoisting and conveying, and pumping.

The remainder of the book is devoted to standard construction methods, with the emphasis on production and costs. The Appendix presents wage rates, production rates for several machines and construction methods, and other data for the solution of construction problems by the student.

Prestressing Specification

CRITERIA FOR PRESTRESSED CONCRETE BRIDGES—By Bureau of Public Roads, U.S. Department of Commerce. 25 pp. Superintendent of Documents, Washington 25, D.C. 15 cents.

In the absence of a standard for prestressing in the U.S., the Bureau of Public Roads, in 1952, prepared and distributed design criteria for prestressed bridges for use on federal-aid highway projects. Those criteria now have been revised and expanded for publication in pamphlet form.

The new version is based on recommendations by several engineers with experience in this field. The discussion shows plainly, however, that there was little unanimity of opinion on most of the criteria, with the result that many of the specifications had to be selected by the bureau from the various alternatives.

Significant features of the criteria affecting design include: Temporary stresses before shrinkage and creep of the concrete are based on strength of concrete at time of prestressing, not the 28-day strength. Restrictions are placed on tension in the concrete under dead, live or impact load. Simple formulas are given for determining loss of prestress. And a method is presented for computing ultimate strength of prestressed beams.

Noteworthy points in the construction section of the criteria include: All jacking devices must be calibrated to permit stress in the tendons to be computed at all times. Contractors should be held responsible for improper storing or handling of prestressed units. Concrete for pretensioned units should have a minimum strength of 3,500 psi when the prestress is transferred to it. Unbonded tendons should be galvanized and coated with tar. And enclosures for tendons should be metallic.

PERSONAL CONTACT

...that's the secret of successful business

Canadian International Trade Fair

YOUR GATEWAY TO WORLD TRADE

See what the world has to offer in the way of new products—new ideas—new manufacturing techniques.

In Toronto, at the 1955 Trade Fair, you can meet manufacturers from many countries and discuss personally your needs. In a single day, you can compare the products of a dozen different suppliers, whether for your own use or re-sale. Every business man—employer or employee—is invited to attend the Trade Fair.

Address requests for information and accommodation to your nearest Canadian Government Trade Office or The Administrator, Canadian International Trade Fair, Exhibition Park, Toronto.

TORONTO CANADA MAY 30th TO JUNE 10th 1955

8th Annual

CANADIAN International TRADE FAIR

YOUR GATEWAY TO WORLD TRADE

OPERATED BY THE GOVERNMENT OF CANADA TO PROMOTE YOUR BUSINESS

Roofing-Contractor's Superintendent (at left)
JACK OWEN says, "You've got a roof of superior strength when Corruform and Tufcor are used. Big savings in time and labor costs because these materials are easy to place and weld."

Contractor's Representative (at right)
HAROLD HERES says, "Corruform and Tufcor keep the entire job moving ahead on schedule. That means savings in construction costs."

TUFCOR SPEEDS COMPLETION OF MODERN BATON ROUGE SCHOOL

30,000 SQUARE FEET OF TUFCOR

Quickly Placed. Tufcor and Corruform sheets are delivered to job site pre-cut to fit framing. A crew of two or three men can easily place 5,000 to 10,000 square feet, in a single working day.

Lightweight High-strength Steel Deck is welded to purlins. Deep-corrugated Granco *tough-temper* steel has high load carrying capacity—permits wider joist spacing, reduces framing costs.

Vent Clip Prevents Vapor Pressure Build-up. Granco vent clips, inserted on lip of each sheet, one between each support, prevent vapor build-up in roof slab under intense summer sun.

Granco Products keep job on schedule, reduce labor costs, save time.

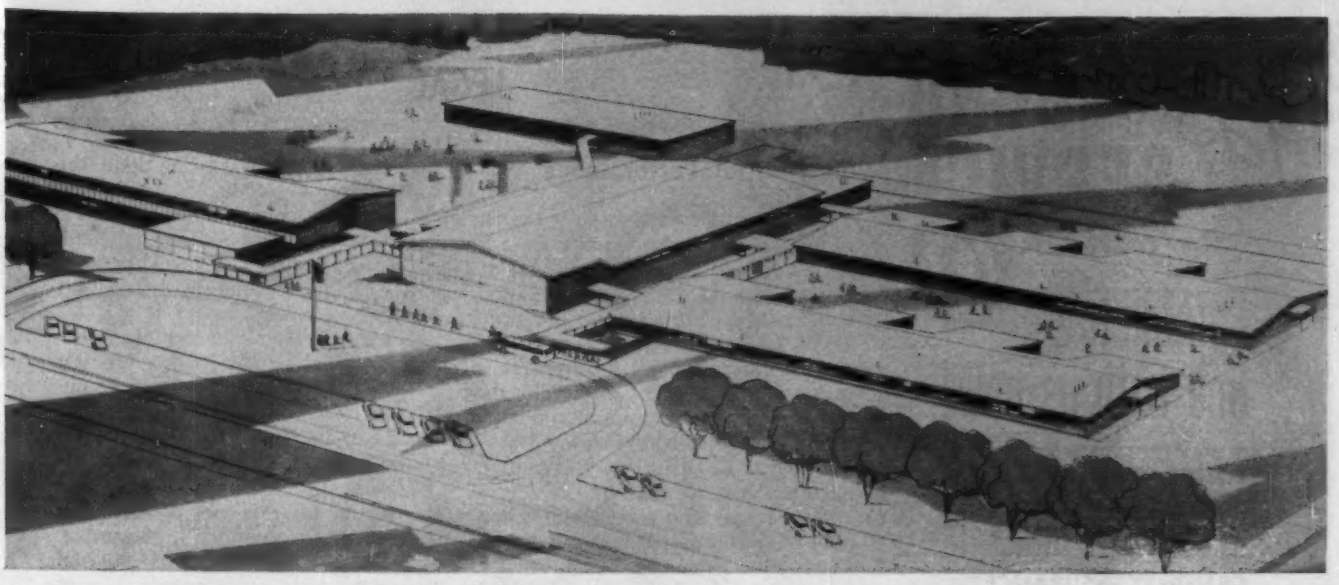
BATON ROUGE, LOUISIANA—One of Louisiana's most modern schools is scheduled for fall completion. Situated on the northern edge of this capitol city, the Glen Oaks School consists of five buildings, connected by covered walks.

Heavy Duty Corruform and Tufcor, specified for the buildings' roof slabs, contributed to substantial savings in time and labor costs. For example, on two of the Glen Oaks buildings, 30,000 square feet of Tufcor was laid in 30 hours.

Harold Heres, Vice President of Caldwell & McCann, contractors on the new Glen Oaks School, says, "there are no unexpected slow-ups when Tufcor or Corruform are specified. That's what we like about these materials—you can be sure you've got a tough, strong roof and construction is much faster."

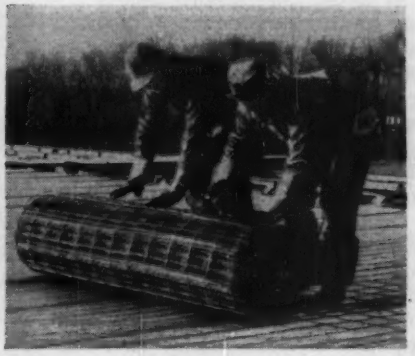
Pre-cut to fit the building frame, Tufcor and Corruform sheets arrived at the Glen Oaks building site ready for placing. As soon as structural steel frame was completed, crews were able to place and weld units to frame and the concrete placing operation started immediately.

Tufcor and Corruform make roof construction a simple, fast operation, resulting in time and material savings. For information, estimates or costs on your building plan, contact home or district office, attention Dept. E-2.



Glen Oaks School, *Baton Rouge, Louisiana* • Architects: *Manson and Thompson, Baton Rouge, Louisiana*
Associate Architects: *Goodman and Miller, Baton Rouge, Louisiana* • Contractor: *Caldwell & McCann, Baton Rouge, Louisiana*

ROOF DECK LAID IN 30 HOURS

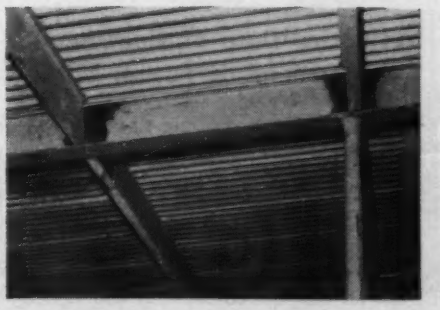


Immediate Working Platform. In place, Tufcor and Corruform provide an immediate safe, usable working surface. Light mesh is added for shrinkage control of lightweight insulating concrete.

Insulation Placed on Tufcor in fast operation. Lightweight insulating concrete (4-5 lbs. psf) on steel deck provides insulation. Bond occurs between concrete slab and galvanized sheets.

Permanent, Incombustible Roof Deck is provided by cast-in-place slab. When concrete is screeded to depth of 2½"-3", load tests show safety factors of 6 to 8 for finished deck.

Ideal Base for Built-up Roof. This deck is ideal from two standpoints — a good deck for the roofer to work on—more important, throughout the life of the building, it is an inorganic permanent base for the built-up roof.



An Economical, Fire-Safe Roof. Finished roof offers maximum in permanence, fire safety. Bright galvanized surface gives lasting protection; affords light reflection when left exposed. However, any normal ceiling treatment may be applied.

see our catalog in S or write for copy

GRANCO

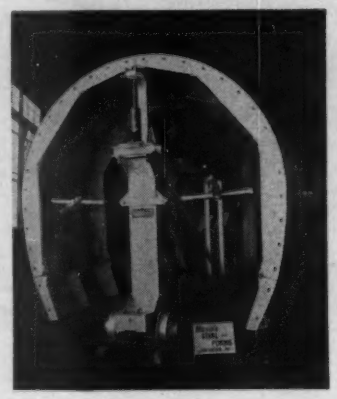
STEEL PRODUCTS CO.

Also manufacturers of Cofar and Roof Deck

Subsidiary of GRANITE CITY STEEL CO.

Main Office: Granite City, Illinois
District Offices: Dallas • St. Louis • Kansas City
Chicago • Minneapolis • Atlanta
Distributors in 80 principal cities

Faster BOND SERVICE
for CONTRACTORS
Establish a credit line with us now!
BONDS—*Bid and Performance*
EQUIPMENT FLOATERS
CASUALTY INSURANCE
Requirements
VALUABLE PAPERS INSURANCE
American Surety Company
Serving contractors for over 70 years
100 Broadway, New York 5
Agents and Brokers Everywhere


MAYO STEEL FORMS
. . . SPEED TUNNEL JOBS
Mayo produces all types of Tunnel Forms . . . each designed for the exact requirements of the job . . . be it Tunnel, Sewer or Conduit.
Write for FREE Bulletin No. 15 or send details.
STEEL FORMS • HEADFRAMES • MUCK BINS • SHIELDS • AIR LOCKS • LOCOMOTIVES • MINE CARS • GROUTERS
MAYO
TUNNEL AND MINE EQUIPMENT
LANCASTER, PA.

LEGAL

Substantial Performance

Substantial compliance with the terms of a written contract, calling for all the carpentry work required for the construction of a house, is all that is required of a contractor and the owner is not entitled to a perfect job in the absence of an express requirement in the contract to such effect.[1] In this case, the defects were minor and could readily be repaired. The contractor was held to be entitled to the contract price less cost of remedying defects.

While one who enters into a contract to perform specified services for a stipulated amount is not entitled to compensation unless he has rendered the services, since up to then he has not performed his contract, the law has made an exception in the case of construction contracts, where the contractor is allowed a recovery where he has substantially performed the work.

Substantial performance has been defined as performance which is complete except for unsubstantial omissions which are compensated for. Where the omission is slight and unintentional, in order to prevent the hardship of a failure to recover even for that which was well done, compensation is permitted for the work done. "The rule is that where a builder has in good faith intended to comply with the contract, and has substantially complied with it, although there may be slight defects caused by inadvertence or unintentional omissions, he may recover the contract price, less the damages on account of such defects. Spence v. Ham, 163 N. Y. 220, 57 N.E. 412; Woodward v. Fuller, 80 N. Y. 312; Crouch et al. v. Gutmann, 134 N. Y. 45, 31 N.E. 271."[2]

[1]Barr & Collins v. Seiden, 120 N.E. 2d 380, 3 Ill. App. 115.
[2]Cassino v. Yacevich et al., 261 App. Div. 685, 27 N.Y.S. 2d 95.

Effective Date of Contract May Depend on Future Event

The owner of a house signed a contract to re-side his house and later cancelled the contract. The contractor then brought an action to recover damages for breach of contract. At the trial the owner testified that at the time he signed the contract, there was an oral agreement that the signed contract was not to become effective until the owner had examined another building the same contractor was residing and, if he was not satisfied with the way the work was being done, the contract would not be effective. Nine days after the contract was signed, the owner examined the other job and, not being satisfied with the work, notified the contractor that he didn't want him to re-side his house.

On the basis of his testimony, the court found that the writing was not intended to operate as a contract until the owner was satisfied with the quality of the contractor's work. The contractor's claim was dismissed.[1]

However, there must be nothing in the writing that is inconsistent with the oral agreement, such, for example, as a clause providing that "no oral arrangement, waiver or modification of any terms of this contract shall be binding upon us unless confirmed in writing."

[1]Tilo Roofing Co. v. Pellerin, 122 N.E. 2d 460, Supreme Judicial Court of Massachusetts, Nov. 19, 1954.
[2]Fadex Trading Corp. v. Crown Steel Corp., 189 Misc. 611, reversed 272 App. Div. 273, 297 N.Y. 903, 79 N.E. 2d 739.

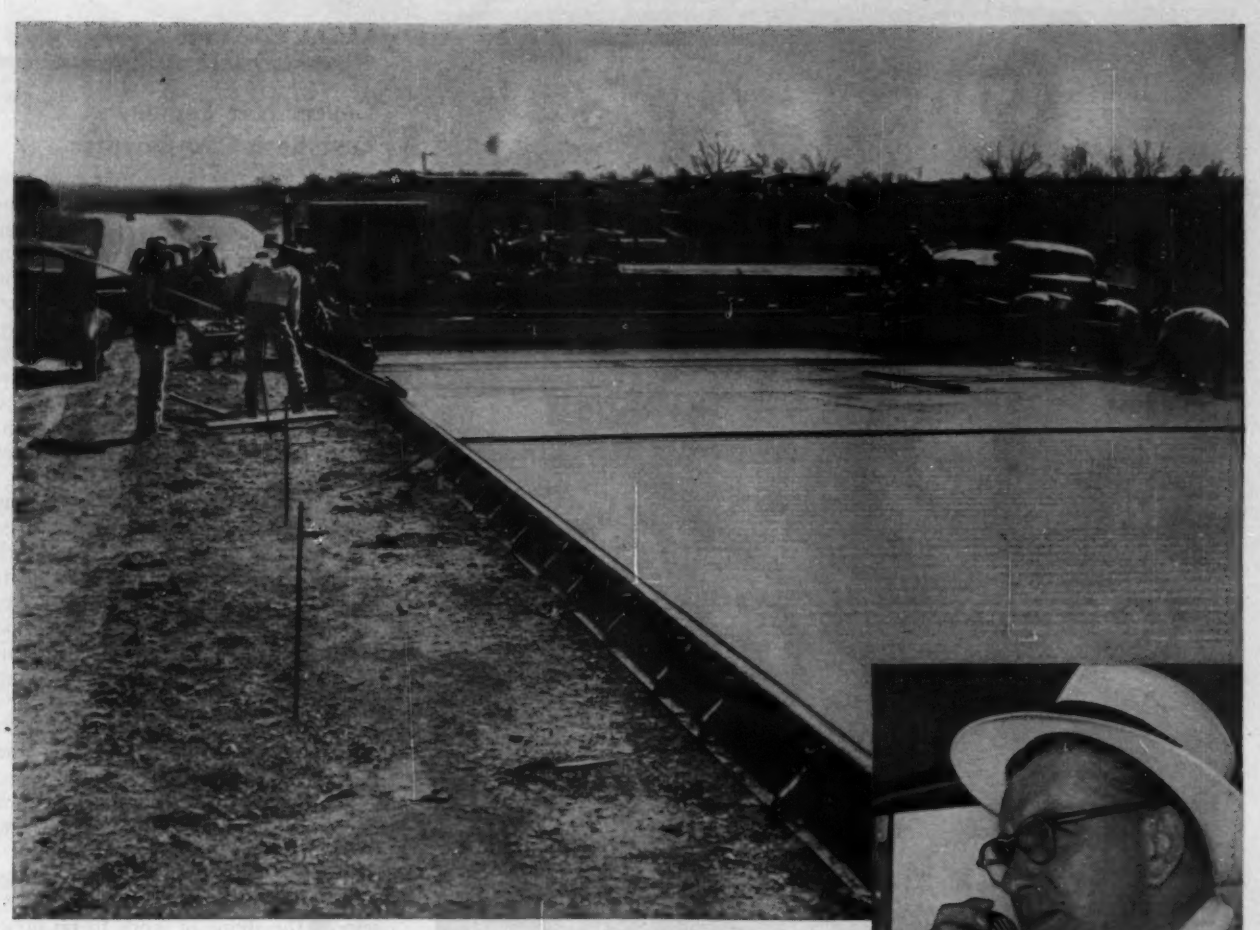
Elements of Cost Limited In a Cost-Plus Contract

A construction contract provided that the contractor was to receive as compensation for services rendered in the construction of the building, "a sum equal to 10 per cent of the entire cost of such building." The court[1] held that under such a contract, the contractor was not entitled to include as elements of cost a proportion of the salaries of its officers and office employees for time used while supervising or superintending the construction of the building. Neither was it entitled to include as elements of cost such items as charges for telephone calls, carfare, postage, stationery, or use of tools and equipment.

The court held that while the contractor had a right to employ a superintendent to supervise the construction of the building, it could not charge for the time used by its officers in doing this work. As to telephone calls and other items that were charged, these were office charges of the contractor and were not part of the costs and expenses of the building. So, too, the tools used in the construction of the building were a part of the equipment that the contractor was to furnish. When a contractor agrees to build, he must, in the absence of a contrary agreement, furnish all the tools and appliances needed to perform the work.

[1]Shaw v. Beaumont Co., 88 N.J.Eq. 333, 102 A. 151.

(*Legal continued on page 78*)



7 REASONS FOR G-E 2-WAY RADIO

- ★ Control field operations
- ★ Save time
- ★ Increase efficiency
- ★ Cut idle time
- ★ Expedite and improve customer service
- ★ Coordinate vehicle dispatching
- ★ Lower costs

A superintendent maintains constant touch with construction headquarters via General Electric 2-way radio . . . and at the same time supervises numerous on-the-job operations.

2-WAY MOBILE RADIO

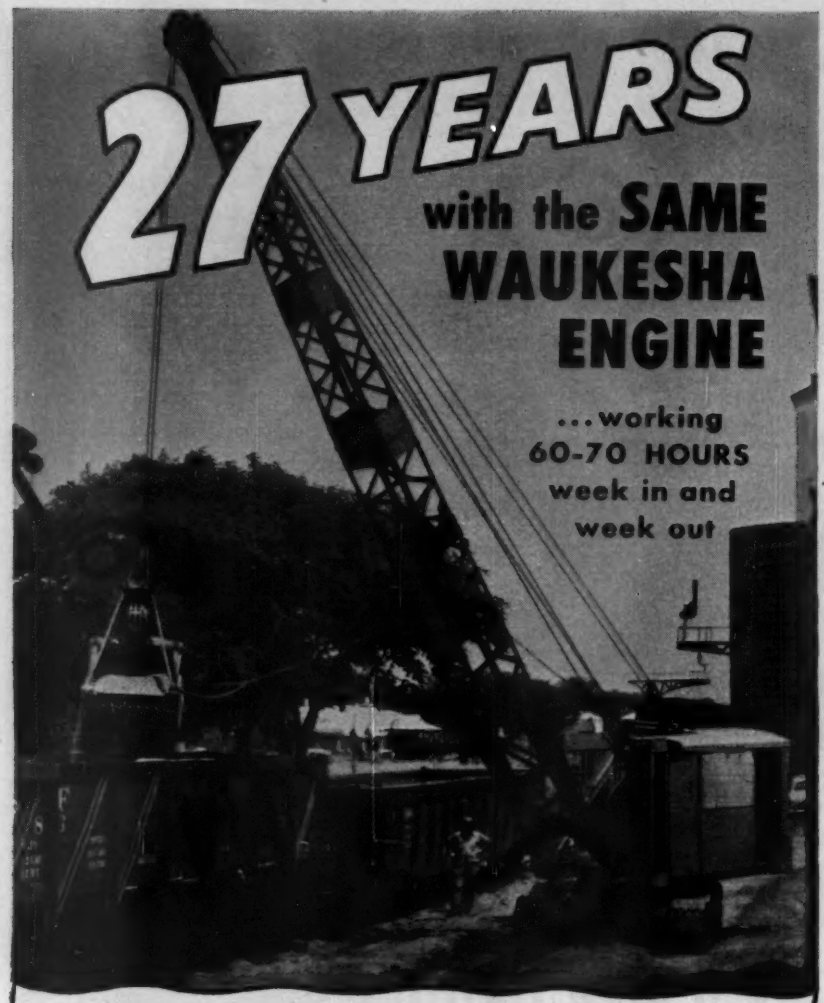
FREQUENCY STABILITY & SELECTIVITY
guaranteed for life!

THE importance of 2-way radio to you *for any reason* is actually a point in favor of selecting G-E equipment! Radio saves you money. Don't lose this money on an expensive-to-maintain communication system. Buy G-E! Its reputation for low cost maintenance requirements is widely respected throughout your industry! And, radio must perform on-the-job *at all times.* When it fails, your profit takes a beating! Superior G-E design . . . G-E components function to protect profit . . . provide always dependable performance. Select 2-way radio equipment carefully and know why G-E is preferred by leading companies in your business.

For additional details write to: *General Electric Co., Section X2245-14, Communications Equipment, Electronics Park, Syracuse, N.Y.*

Progress Is Our Most Important Product

GENERAL ELECTRIC



Unloading 32 railway cars of sand in 9 hours! That takes a fast operator, a good crane, and speedy, responsive, reliable power.

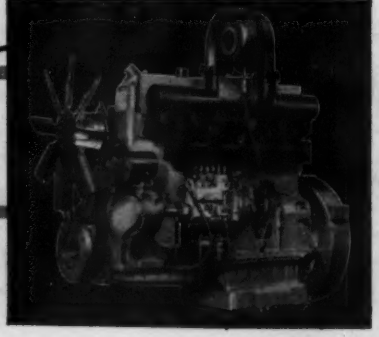
Contractors L. V. Hites and M. W. Martin of Topeka, Kansas, have such a combination.

Operator, Earl Walker, has been speeding up construction jobs with this Waukesha Engine powered American Crane ever since 1928.

That's 27 years' straight—working 60 to 70 hours every week. The Waukesha JL (Serial G-181) is the crane's original engine. It's had several overhauls, of course. Once it got a set of second-hand blocks (when new ones couldn't be had). Sure they offer Earl new cranes. He likes this crane and its Waukesha.

...and modern Waukesha Engines have even greater stamina and reliability

GAS • GASOLINE • NORMAL or TURBOCHARGED DIESELS
—up to 1135 horsepower for every industrial service



Modern 1197 cu. in. Waukesha Turbocharged Diesel—Model WAKDB5—over 350 hp—used in many makes of cranes, shovels and heavy trucks. Send for bulletin.

279
WAUKESHA MOTOR COMPANY
WAUKESHA, WISCONSIN
NEW YORK • TULSA • LOS ANGELES

LEGAL

Courts Not Engineers Last Resort in Disputes

Most construction contracts specify that if any dispute arises as to the work to be done, final determination shall be made by the architect or engineer, and that such determination shall be conclusive on the parties. Despite such provisions, it has been held almost uniformly that if the engineer's determination is clearly erroneous and is not sustained by the facts, such determination is the equivalent of bad faith on his part, and is not binding.[1]

The writer has represented many contractors with claims against the City of New York in connection with the construction of various parts of its subway system. In each case the city interposed the defense that under the contract, the determination of the engineer in favor of the city was binding and asked to have the contractor's claim dismissed. In no case was such application granted. Instead, the court heard testimony as to the claim, and if it believed the determination of the engineer was unfair or arbitrary, the claim of contractor was allowed.

In one case where the contract was to be performed on a unit price basis, one of the items of work to be done was underpinning of buildings. The contract provided that such work would be paid for when ordered and directed by the engineer. The contract also required the contractor to take whatever steps might be necessary to protect adjacent buildings. Responsibility was placed on the contractor for all damages that might be done to buildings. The contractor notified the engineer that certain buildings should be underpined in order to protect them from damage and asked the engineer to issue an order for the work. The engineer refused, claiming that it was not necessary to underpin the buildings in question. The contractor, however, proceeded with the underpinning and later brought an action to recover for its expense. The city claimed that such work was to be paid for, only when ordered by the engineer, and that his determination that such underpinning was unnecessary was conclusive. The court held otherwise and permitted each side to introduce expert testimony to show whether or not the underpinning was necessary. The jury brought in a verdict in favor of the contractor which was affirmed on appeal.[2]

[1]Smith Contracting Co. v. City of New York, 240 N.Y. 491.
[2]Hopkins et al. v. City of New York, 217 App. Div. 790, 217 N.Y.S. 213.

That's The One We've All Been Waiting For—A Design Manual On V-LOK Framing

A REVELATION AWAITS YOU AND YOUR DESIGNING STAFF

YOU HAVE A BUILDING TO DESIGN?

GET THIS CATALOG! Forty pages of details for Schools, Commercial, Industrial and Shopping Center application.

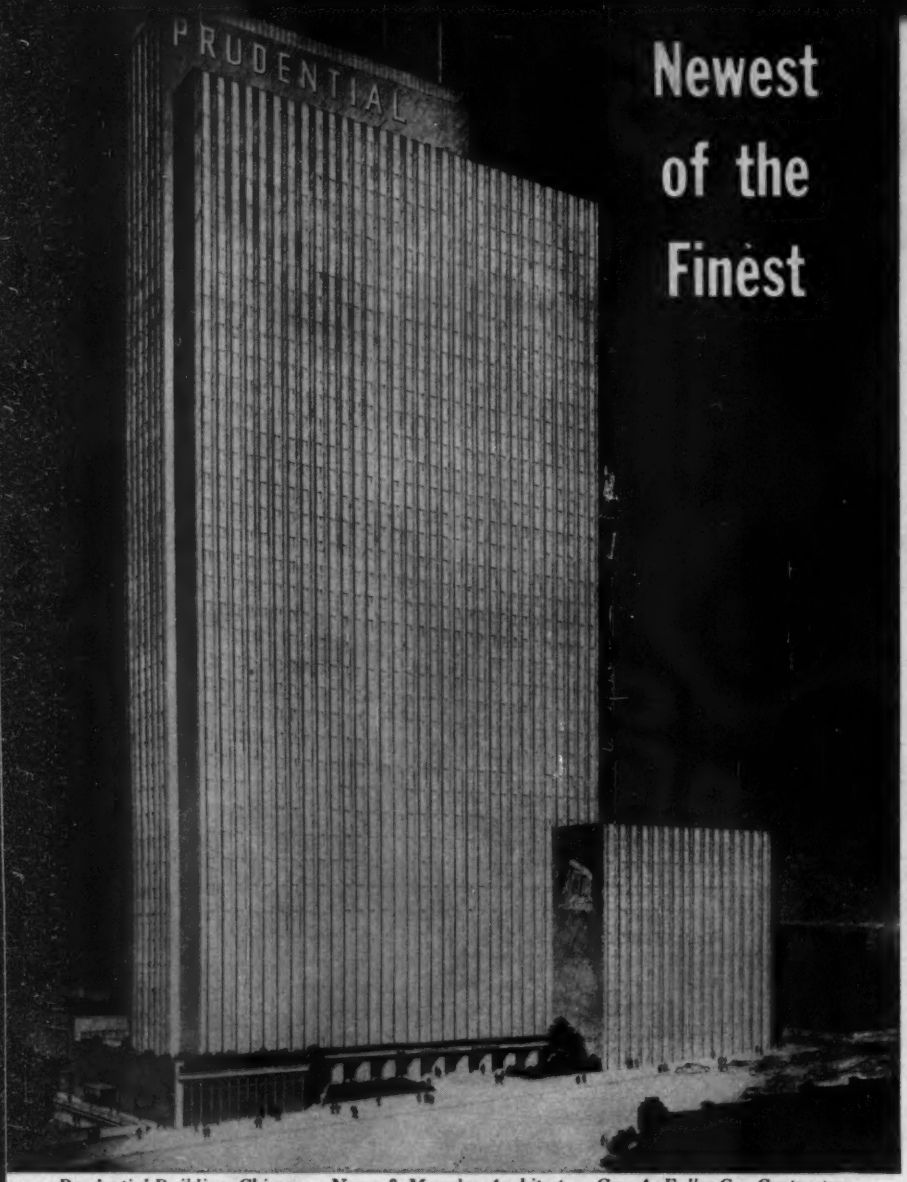
STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER INCORPORATED

CANTON 1, OHIO

• ENGINEERING • FABRICATING AND ERECTING •

NAILABLE STEEL JOISTS • LONGSPANS • BOWSTRING ROOF TRUSSES • METAL DECK • V-LOK STEEL FRAMING • STRUCTURALS



Newest of the Finest

Prudential Building, Chicago • Naess & Murphy, Architects • Geo. A. Fuller Co., Contractors

The new Prudential Building will soon rise 600 feet above the shore of Lake Michigan, and become a distinguished addition to Chicago's skyline. This mid-America headquarters of the Prudential Insurance Company will contain more space than any other building used exclusively for offices in Chicago.

As a building, it will take its place among our country's finest structures and is a perfect example of the features a well-informed investor is willing to put into the space he plans to use and rent. For instance, to prevent future obsolescence and to meet the increasing requirements of modern electronic office equipment, architects Naess & Murphy have prepared the new Prudential Building to handle the highest electrical load of any office building yet built. To do this job easily, and to permit layout changes and additions at minimum cost, Robertson Q-Floor construction is being used. This strong, light-weight, steel, cellular structural floor is the only construction material available which provides easy electrical access over every 6-inch area of the entire exposed floor. For more good reasons why fine new buildings all over America have turned to Robertson Q-Floor construction, see the opposite page.

Robertson Q-Floor

Backed by 24 Years' Experience and Thousands of Installations

a product of **H. H. Robertson Company**

2420 Farmers Bank Building • Pittsburgh 22, Pa.

In Canada: Robertson-Irwin Ltd., Hamilton, Ontario

In England: Robertson Thain Ltd., Ellesmere Port, Cheshire

OBITUARIES

John C. Page, 68, former Bureau of Reclamation Commissioner, died in Denver March 23. A civil engineering graduate of the University of Nabraska, he joined the Reclamation Service in 1909 as a topographer in locating Colorado canals. He became superintendent of the Grand Valley Project near Grand Junction, Colo., in 1925, served as office engineer for the Boulder Canyon Project during construction of Hoover Dam, and in 1935 went to Washington, D. C., to head the Bureau's engineering division. He was appointed Commissioner in 1936. Ill health forced him to resign this post in 1943, but he continued to serve as a full-time consultant in the Bureau's Denver office until retirement in 1947.

Stuart M. Christhilf, 65, Baltimore construction engineer and equipment specialist, died in Annapolis March 16. He was connected with the State Roads Commission in the early days of road construction in Maryland. Around 1930 he set up his own business, which he headed as president until his death. He received his engineering training at Columbia University.

Elmer M. Bauer, 46, chief of the military supply section, Buffalo, N. Y., District Army Corps of Engineers, died March 18. A graduate of Rensselaer Polytechnic Institute, he joined the Corps in 1939 and had been assigned to the Buffalo district for 13 years.

Wallace R. Harris, 78, Louisville, Ky., engineer and writer-lecturer on the use of concrete in construction, died March 14 in Milwaukee, Wis. He formed his own engineering company in Louisville in 1908, later worked on construction projects in the U. S. and Canada, and ended his career as superintendent of sewers for Milwaukee. He retired two years ago.

Howard F. Ilgner, 65, traffic engineer and superintendent of electrical service for Milwaukee, Wis., died Feb. 10. In the city's service since 1916, he reportedly developed the first "walk" signals for pedestrians used in the U. S. and the first special traffic lights for school crossings.

William M. Stieve, Sr., a civil engineer in the New York State Department of Public Works, died March 13 in Albany, N. Y. A graduate of Rensselaer Polytechnic Institute, he was associated with the department for 31 years.

Brig. Gen. Gordon E. Textor, 52, U.S. Army retired, former assistant chief of Army Engineers for military operations, died March 20 in Washington, D. C. In 1924 he was graduated from West Point. After 12 years' duty as an engineer officer at posts in the U. S. and Panama Canal Zone he was assigned to the 5th Engineers at Ft. Belvoir, Va. He served as director of the construction bureau of the War Production Board during World War II and was on the War Department General Staff. Later he was deputy administrator of the War Assets Administration and from 1947 to 1949 was chief of the U. S. Military Government Information Control Division in Berlin.

Walter L. Whittemore, a retired government civil engineer, died in Houston, Texas, March 20. He began working for the Bureau of Reclamation in 1905. In 1923 he transferred to the Corps of Engineers, where he worked until retirement in 1948. He was a graduate of Massachusetts Institute of Technology.

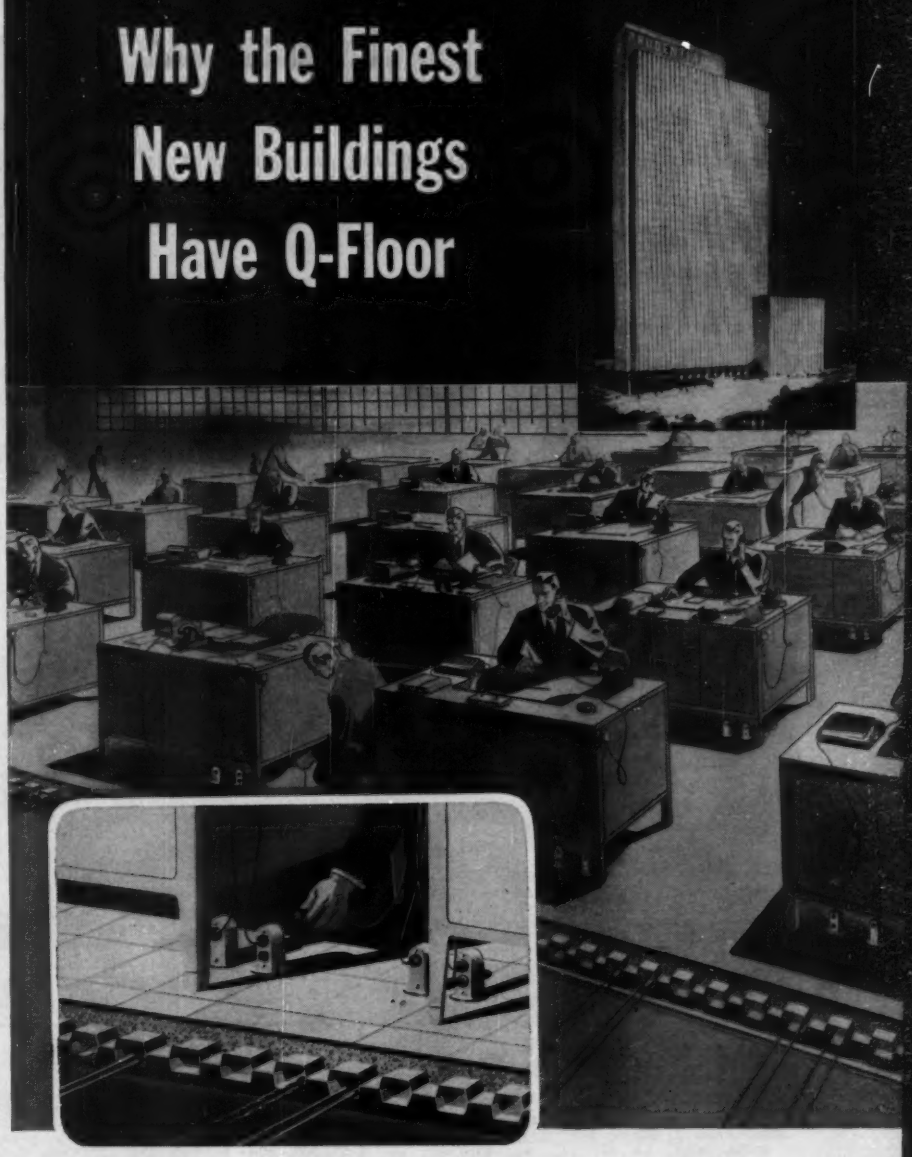
Sheldon E. Rockwell, 72, retired Bureau of Reclamation engineer, died in Santa Cruz, Calif., the middle of March. He was stationed at Boulder City, Nev., from 1930 to 1945 and retired from government service in 1946. He had degrees from Yale and Massachusetts Institute of Technology.

Frederick A. Perley, 78, retired civil engineer of Black Mountain, N. C., died March 19 at Ft. Myers, Va. He received his civil engineering degree from Lehigh University in 1898. Early in his career he served as engineer in charge of building the Taft Memorial Bridge on Connecticut Avenue, Washington, D. C. Later he operated Perley & Crockett Lumber Co., Kenningston, W. Va., and Crockett Lumber Co., Black Mountain.

Herbert L. Bloemker, 53, civil engineer and former Marion County, Ind., surveyor, died March 20 in Indianapolis. A graduate of Purdue's civil engineering school, he was responsible for layout work on several commercial centers as well as the Chrysler plant in Indianapolis. Several years ago he engineered rebuilding of the State Fairgrounds race track.

James G. Bardsley, 56, engineer and surveyor for Rapp & Rapp, Clayton, Mo., surveyors, died Feb. 17 in St. Louis. In 1918 he became a topographer on Mexican border surveys for the Geological Survey. Later surveys included projects for the Missouri-Pacific Railroad and the St. Louis Street and Sewer Department.

Why the Finest New Buildings Have Q-Floor



Beyond the fact that Q-Floor offers the greatest electrical availability of any structural floor in existence (as indicated in the above illustration), there are several other vital reasons why it has become a part of the finest new buildings in America.

Q-Floor saves construction time and money. The steel cellular units come on the job cut to fit so that two men can lay 50 square feet in one minute. In the case of the U. S. Steel-Mellon Bank Building in Pittsburgh, forty floors were installed in four months. Because Q-Floor provides a perfect platform for work and storage, 1,000 men were able to operate on the job without interfering with each other. Q-Floor saves steel as a result of its favorable ratio of weight to strength. Footings and structural steel can be lighter than with ordinary construction. Moreover, Q-Floor saves drafting room time since completely predetermined wiring and mechanical layouts are not necessary. Because no combustible forms and shoring are required, there has never been a construction fire on a Q-Floor job. Add these features to low cost on wiring changes in the years to come, and it's easy to see why Q-Floors are a feature of America's finest new buildings.

The Robertson Technical Library contains data books on Q-Floor which should be part of every architectural and engineering library. Write to us.

Robertson

Q-Floor

Backed by 24 Years' Experience and Thousands of Installations

a product of **H. H. Robertson Company**

2420 Farmers Bank Building • Pittsburgh 22, Pa.

Offices in All Principal Cities **World-Wide Building Service**

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Connecticut**—AAA FACILITIES—BA 4/20—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., Special AAA Facilities, Milford, ENG-19-016-55-102. $800,000. Plans deposit $50. Spector & Montgomery, Falls Church, Va., and Leon Chatelain, Jr., 1632 K St. N.W., Wash., D. C., engrs.-archts. Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., engrs. CD 12/22.

▲† **Vt., Burlington**—AIR NATIONAL GUARD FACILITIES—BA 4/21—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., Air National Guard Facilities, Municipal Airport, ENG-19-016-55-100. $1,250,000-$1,500,000. Plans deposit $25. Freeman, French & Freeman, 138 Church St., archts. Mills & Petticord, 3308 14th St. N.W., Wash., D. C., engrs. CD 3/16.

▲† **Vt., North Concord**—FACILITIES—BA 4/26—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., facilities, ENG-19-016-55-5. $1,000,000-$1,250,000. Plans deposit $50. Webster-Martin, Inc., Municipal Airport, South Burlington, archt. CD 1/26.

BIDS ASKED—BUILDINGS

Mass., Amherst—CLASSROOM—BA 4/22—State, University of Mass., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, U-701 classroom bldg. University of Mass. $880,000. Plans deposit $50, refundable. James A. Britton, 315 Fedreal St., Greenfield, archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW HAMPSHIRE**—State Dpt. P. Wks. & Hys., Concord,
Frank Palazzi & Sons, Inc., 2321 Hartford Ave., Johnston, R. I., CA $1,087,515, 2.566 mi. 4-lane divided road mix hy, 70 ft. steel beam bridge, two 30-ft. rein.-con. bridges and 197 ft. steel beam bridge on F. E. Everett Turnpike, Manchester. Bids Mar. 11. CD 3/16, under LB.

† **Granger Constr. Co., Inc.**, 306 Main St., Worcester, Mass., CA $759,860. est. $675,000-$1,025,000. AIO warehouse, special weapons training bldg. reclamation yard, theatre, gymnasium, base technical laboratory bldg., Portsmouth Air Force Base, ENG-19-016-55-894, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 22. CD 3/28, under LB.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass.
Mass.—Frank J. Shields, Inc., 91 Central St., Southbridge, Mass., LB $277,171, est. $300,000, hy. reconstr., Worcester Rd., Rte. 6B, Hubbardston, S-90 (6);
Mass.—Alexander Constr. Co., 4641 Hiawatha Ave., Minneapolis, Minn., LB $399,170, est. $425,000, hy. reconstr. on Martha's Vineyard, Oak Bluffs-Tisbury. S-102 (1);
Mass.—cancelled bids to have been opened Mar. 29, hy. reconstr., Andover St., Rte. 114, Danvers. Est. $75,000. CD 3/16.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Peter Salvucci & Sons, Inc., 55 Pond St., Waltham, Mass. CA $1,030,081, est. $1,050,000. constr. section hy. relocation of Rte. 9, Cummington. CD 3/25, under LB.

▲ **MASSACHUSETTS** — Massachusetts Turnpike Auth., 80 Boylston St., Boston,
B. Perini & Sons, Inc., Framingham, Mass., LB $10,317,533. Contract 51-010 hy. and bridge constr., West Stockbridge, Stockbridge and Lee. Bids Mar. 31. CD 2/23.

▲† **S. & A. Allen Constr. Co.**, 9 Newbury St., Boston, Mass., LB $818,056, Schedule A;
E. Turgeon Constr. Co., Inc., 42 Weybosset St., Providence, R. I., LB $782,260, Schedule B;
Peter Reiss Constr. Co., Inc., 105 Court St., Brooklyn, N. Y., LB $992,992, Schedule C;
Gilbane Building Co., 90 Calverley St., Providence, R. I., LB $2,342,844, Schedule D;
The Ferber Co., 16 Johnson Ave., Hackensack, N. J. LB $1,711,982, Schedule E, for Special AAA Facilities (8 sites-4 batteries at Foster, Rehoboth and Swansea, R. I. and Dighton, Mass.), RHODE ISLAND and MASSACHUSETTS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 30. CD 3/15.

▲† **Gilbane Building Co.**, 90 Calverly St., Providence, R. I., CA $2,432,845, Special AAA Facilities, Foster, R. I., Rehoboth, Swansea and Dighton, Mass., ENG-19-016-55-78, RHODE ISLAND and MASSACHUSETTS. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Mar. 30. CD 4/4, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Carroll-Verge & Whipple, Inc.**, 370 Wahconah St., Pittsfield, Mass., CA, $1,190,326, Regional High SCHOOL adjacent Pratt Hospital and Community Field, AMHERST, MASS. Towns of Amherst and Pelham, Amherst-Pelham Regional Dist. School Comn., Town Hall, Amherst, Mass. Bids Mar. 22. CD 3/25, under LB.

▲ **Stoney Brook Village Corp.**, c/o Saunders & Shannon, Inc., North Main St., Randolph, Mass. Separate Contracts. $2,600,000. 215 RESIDENCES, Brookville Section, BROCKTON, MASS. George E. Ross, 34 Ames St., Quincy, Mass., archt.
M. S. Kelliher Co., 294 Washington St., Boston, Mass. CA Approx. $900,000. CHILDREN'S HOME, Hale St., HYDE PARK, MASS. Our Lady of Czenstochowa, 17 Hale St., Hyde Park, Mass. Chester F Wright, 681 Main St., Waltham, Mass., archt.
▲ **M. S. Kelliher Co.**, 294 Washington St., Boston, Mass. CA $1,500,000. PROVINCIAL HOUSE, Pelham St., LEXINGTON, MASS. Sisters of Charity (Grey Nuns of Montreal), 13 Pelham Rd., Lexington, Mass. Bids Mar. 19. CD 3/1.
▲ **Berndt M. Erickson**, 38 Douglas Rd., Melrose, Mass. CA Over $1,000,000. 40 HOUSES, Apple Hill, LYNNFIELD, MASS. Robert Stone Co., 491 Broadway, Lynnfield, Mass. Claude H. Miquelle, 57 Newcomb Rd., Melrose, Mass., designer.
Adelard & Bilodeau, c/o John B. Kennedy, 341 S. Main St., Sharon, Mass. Owner Builds. $350,000. 28 to 30 RESIDENCES, Quincy St., SHARON, MASS. Lester N. Lechter, 739 Boylston St., Boston, Mass., designer.
Turner Realty Trust, 286 Central Ave., Milton, Mass. Separate Contracts. $600,000. 30 RESIDENCES, near Center St., WALPOLE, MASS. George E. Ross, 34 Ames St., Quincy, Mass., archt.
E. & F. Constr. Co., 94 Wells St., Bridgeport, Conn., CA, $350,000, CONVENT, Stratfield Rd., FAIRFIELD, CONN. Church of the Assumption, Rev. Robert L. Christopher, pastor, Fairfield, Conn. CD 3/14.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Pennsylvania and New Jersey**—AAA SITES—BA 4/19—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., 12 AAA sites in Bucks, Chester, Delaware and Montgomery Counties, Pa. and Camden, Burlington, Gloucester Counties, N. J. $6,000,000.

▲† **N. Y., Plattsburgh**—STORAGE FACILITIES—BA On Or About 4/26—U. S. Eng., 111 E. 16 St., New York, Zone 3, storage facilities for Ordnance Area, Schedule I, constr. 5 concrete igloo magazines, 1 segregated storage magazine; 1 small arms warehouse; 1 base ammunition shop, incl. area clearing and grubbing, excavation, earth covers, seeding, sodding, required utilities services and roads and service areas; Schedule II, maintenance and inspection bldg., auxiliary power plant, base spares storage bldg., gate house, four ordnance storage igloo; secure Storage "A" structure, secure Storage "C" structure, fences, utilities, roads, seeding and sodding. Plattsburgh Air Force Base, ENG-30-075-55-258. $1,000,000-$1,500,000. Plans deposit $5. CD 7/16.

BIDS ASKED—BUILDINGS

▲† **N. J., Fort Dix**—BARRACKS REHABILITATION, etc.—BA 4/26—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., 120 barracks rehabilitation and alterations, No. 46-109-55-71. $3,000,000. Frank Grad & Sons, 11 Commerce St., Newark, N. J., engrs.-archts. CD 8/18/52.

▲† **Md., Andrews Air Force Base**—HOSPITAL—BA On Or About 6/1—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., 250-500 bed hospital, ENG-49-080-55-46 (43). $5,000,000. Plans deposit $100. CD 4/14/53.

▲† **Md., Camp Detrick**—LABORATORY, etc.—BA On Or About 6/2—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C. laboratory and air-incinerator bldgs., ENG-49-080-55-11-(9), $5,000,000. Plans deposit $150. Vitro Corp., 962 Wayne Ave., Silver Spring, archt. CD 6/18.

SOON LETS CONTRACT—BUILDINGS

▲ **N. J., Moorestown**—PLANT—Radio Corp. of America, Front and Cooper Sts., Camden, soon lets contract engineering plant addn. $1,000,000. Day & Zimmerman, 1700 Sansom St., Phila., Pa., engrs. CD 1/20.

▲ **Pa., Phila.**—WAREHOUSE—Owner, c/o 1620 W. Thompson St., soon lets contract warehouse, Oramingo Ave. and Church St. $1,000,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
N. Y.—Seneca Supply & Equipment Co., Inc., 1758 Waldin Ave., Buffalo, N. Y. LB $103,181, 172 ft. three-span steel bridge to carry Rte. 422 over Buffalo Creek, approx. 2-mi. west of intersection of Rtes. 422 and 358, Erie Co.,
N. Y.—Pasquale Constr. Co. Inc., 311 Cornell Ave., Endicott, N. Y., LB $309,884, widen and imprv. 3 bridges and 2 culverts on Rte. 5, between Barcelona and Lake Erie State Park, Chautauqua Co. Bids Mar. 31. CD 3/8, under Streets and Roads.
▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
N. Y.—Bero Constr. Corp., McKinley Bldg., Buffalo, N. Y., LB $361,862, relocation 2.76 mi. Rte. 22 southern end of Plattsburg, Clinton Co.;
N. Y.—Seneca Supply & Equip. Co., Inc., 1758 Waldin Ave., Buffalo, N. Y., LB $231,210, wid'n., reconstr. 0.71 mi. curved sect. Rte. 20 at intersection of Southwestern Blvd. and Transit Rd., Erie Co.;
N. Y.—Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., LB $1,864,301, wid'n. 3.33 mi. Sect. Rte. 110, straighten 0.7 mi. sect. Rte. 109 where Rtes. 109 and 110 intersect, building two new bridges, Suffolk Co.;
N. Y.—Depew Paving Co., Inc., 4955 Broadway, Depew, N. Y. LB $839,504, wid'n., reconstr. 4.14 mi. Rte. 20, from Lancaster's east corporation line and extending eastward to Town Line, Erie Co. Bids Mar. 31. CD 3/8.
NEW YORK—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany,
B-B Electrical Contractors, Inc., 280 Vreeland Ave., Paterson, N. J., Lb $321,275, c. highway lighting facilities 3.39 mi. New York State Thruway's Hudson River Bridge and approaches, (Tappan Zee Bridge and approaches), Rockland and Westchester Counties. Bids Mar. 31. CD 3/8.
▲ **D. W. Winkleman, Inc.**, Heffernan Bldg., Syracuse, N. Y. CA $1,120,218, Grass River Bridge and approaches to State Hy. 37 and to North Grass River Rd., near Massena, St. Lawrence Co. Spec. 5431, St. Lawrence Contr. No. 10, NEW YORK. The Power Authority of The State of New York, 270 Broadway, New York 7, N. Y. Bids Mar. 8. CD 3/10, under LB.
Spearin, Preston & Burrows, Inc., 50 Church St., New York 7, N. Y., CA $939,454. Contr. No. 1A, substructure East Bridge over Fresh Kills, Richmond Boro, NEW YORK, President Richmond Boro, Boro Hall, St. George, Staten Island 1, N. Y. Bids Feb. 21. CD 2/24, under LB.

(Continued on page 84)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

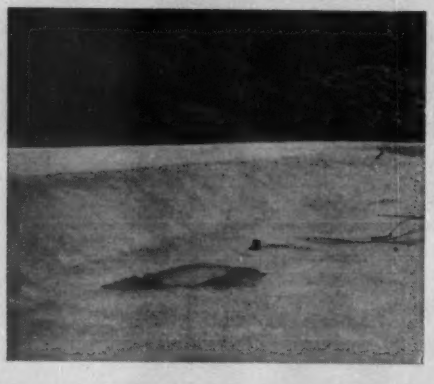
† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

More and more erectors are turning to high-strength steel bolting of structural joints. Bolted connections can be made faster, quieter and with far less man power. High-strength bolts afford greater clamping force and stronger joints than ever before possible.

Key to this successful new method is the Chicago Pneumatic Air Impact Wrench. Easy-to-handle CP Air Impact Wrenches are powerful, fast, and smooth. Safe . . . with no dangerous torsional thrusts. They're reversible... ideal for removing fitting-up bolts in pre-assembly work. Furnished with side, pistol grip or straight handles. Angle-head models for reaching awkward, hard-to-get-at spots. For more details write *Chicago Pneumatic Tool Co., 8 East 44th St., New York 17, N. Y.*

Chicago Pneumatic

"POWER VANE" ROTARY PORTABLE AIR COMPRESSORS • STATIONARY AIR COMPRESSORS • PNEUMATIC TOOLS • ELECTRIC TOOLS • ROCK DRILLS



OLD RESERVOIR MADE BETTER THAN NEW

with "GUNITE" lining placed over the original lining.

The two pictures show the reservoir belonging to the Borough of Hellertown, Penna. The upper view shows the "GUNITE" work in progress, and the lower view the completed lining.

This old concrete lined reservoir was badly cracked and disintegrated with considerable leakage.

We chipped out the disintegrated concrete, sandblasted the entire area, and placed a minimum of two inch "GUNITE" reinforced with heavy mesh.

This reservoir is now water-tight and better than new.

Our 72-page bulletin A-3000 describes many reservoir jobs and scores of other uses of "GUNITE."

Write for your copy of bulletin A-3000

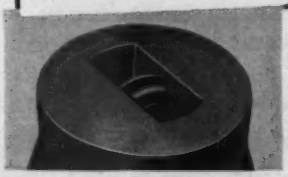
CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES - ALLENTOWN, PA., U. S. A.

MANUFACTURERS OF THE CEMENT GUN

Frederick
CAST SEMI-STEEL
BALLS

Your low cost production tool for

■wrecking old buildings ■smashing scrap metal
■smashing old paving ■secondary quarry breakage



Exclusive E-Z SWING steel eye, deeply imbedded in ball, gives better control; more cable protection. Special Release Hooks for "free dropping" also available.

Tough and rugged, they're made to stand abuse without maintenance cost. Made in sizes to suit your needs. Prompt shipment F. O. B. Frederick, Md., from stock. Write today for free illustrated literature and prices on Frederick Balls and Weights that save your production costs.

SIZES AND WEIGHTS SHIPPED FROM STOCK		
500 lbs. (ball-shaped)	2000 lbs. (ball-shaped)	5200 lbs.
1000 lbs.	3300 lbs.	6500 lbs.
1500 lbs.	4000 lbs.	8000 lbs.

MAKERS OF MANHOLE FRAMES, COVERS AND STEPS • STORM GRATINGS • METER FRAMES AND COVERS • CENTRIFUGAL PUMPS • GRAY IRON CASTINGS

FREDERICK IRON & STEEL, INC.
FREDERICK, MARYLAND

(Continued from page 82)

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick, N. J.—**P. T. Cox Constr. Co.**, 271 Church St., New York, N. Y., CA, $853,178, Contract N-18A, concrete decks for southeast viaduct from Ave. E. interchange to vicinity of Brown Pl.;

N. J.—**Woodcrest Constr. Co. Inc. & Wheeler Eng. Co., Inc.**, 369 Lexington Ave., New York, N. Y., CA, $507,740, Contract N-18 B, concrete decks for 5 bridge structures between Linden Ave. and Phillip St. in connection with Newark Bay-Hudson Co. exten. of N. J. Turnpike. Bids Mar. 22. CD 3/29, under LB.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,

Brookfield Constr. Co., Inc., 521 Fifth Ave., New York, N. Y., LB, $2,759,236, Contract N-25A, 25B, 25C, concrete decks for portions of East Viaduct West Viaduct and North Terminal ramps of Newark Bay-Hudson county extension of N. J. Turnpike, Jersey City, Hudson Co. Bids Mar. 29. CD 3/11.

NEW JERSEY—N. J. Turnpike Auth., Administration Bldg., New Brunswick,

Horn Constr. Co., Inc., Hewlett Ave., Merrick, L. I., N. Y., LB, $237,870, Contract N-25 D, concrete decks for portion of North Terminal ramps and reconstr. existing 12 and 14 St. viaducts, all in connection with Newark Bay-Hudson County exten. of N. J. Turnpike, Jersey City, Hudson Co. Bids Mar. 29. CD 3/17.

▲† **C. J. Langenfelder & Son, Inc.**, 8427 Pulaski Hy., P. O. Box 5108, Baltimore 24, Md., CA, $1,989,000 apron extension and wash rack, McGuire Air Force Base, ENG-36-109-55-47, WRIGHTSTOWN, N. J. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids Mar. 10. CD 3/21, under LB.

† **MARYLAND**—Bureau P. Rds., Dpt. Commerce, 499 Pa. Ave. N. W., Wash., D. C.,

Williams Constr. Co., Inc., Box 145, Baltimore 20, Md., LB, $226,238. road constr. at 4 locations Fort George G Meade, Proj. MD-D-AD-4 (2), Anne Arundel and Prince George's Counties. Bids Mar. 28. CD 3/10.

A. F. Sutch, 2107 Maryland Ave., Baltimore, 18, Md., CA, $350,000, masonry, stone mausoleum, 5608 Dogwood Rd., north of BALTIMORE, MD. Charles Blackburn Simm, Inc., 6 E. Franklin St., Baltimore, 2, Md.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Joseph P. Blitz, Inc.**, 150 E. 39 St., New York 16, N. Y., CA $2,566,000, general constr. and fdns. for Albany HOUSES II (Proj. No. NYS-66) area bounded by Bergen St., Troy, St. Marks and Albany Aves., BROOKLYN, N. Y. New York City Housing Auth., 299 Broadway, New York 9, N. Y. Bids Mar. 8. CD 3/10, under LB.

▲ **Berger-Tilles Projects**, 64 Division Ave., Levittown, N. Y. Owner Builds. $1,000,000. SHOPPING CENTER, 12-acre tract, Jericho Turnpike and Babylon-Commack Rd., COMMACK, N. Y. A. H. Salkowitz, 37-60 82 St., Jackson Heights, N. Y., archt.

▲ **Hamilton Park Homes**, c/o Gale-Oppenheimer, archts., 83 W. Sunrise Hy., Freeport, N. Y. Owner Builds. $4,500,000. 450 HOUSES, 75-acre tract Sunrise Hy., GREAT RIVER, N. Y.

Canterbury Estates, Inc., c/o J. Albert Gleeson, Inc., 1235 Yonkers Ave., Yonkers, N. Y. Owner Builds. $900,000. 57 HOUSES, Durham Rd. off Canterbury Rd., GREENBURGH, N. Y.

Tandy & Allen Constr. Co., Inc., 280 Hackensack Ave., Hackensack, N. J., LB $777,000, general constr. STOREHOUSE and COLD STORAGE BLDG., Middletown State Homeopathic Hospital, MIDDLETOWN, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Mar. 31. CD 2/15.

▲ **Bd. Educ., Bureau Constr.**, 42-15 Crescent St., Long Island City 1, N. Y. rejected bids Feb. 4, general constr. LB $4,210,000, heating, LB $528,050; electrical work, LB $871,319; escalators, LB $407,812 for New York SCHOOL OF PRINTING, W. 49 St. and W. 59 St., between 9 and 10 Aves., Manhattan Boro, NEW YORK, N. Y. Will be redesigned and readvertised. CD 2/10, under LB.

Dierks Heating Co., 43-32 33 St., Long Island City, N. Y. CA $679,700, sanitary sewer for POWER PLANT BLDG. No. 122, Manhattan State Hospital, Wards Island, NEW YORK, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Mar. 10. CD 3/14, under LB.

Viet & Co., Inc., 260 DeVoe St., Brooklyn 11, N. Y. CA Approx. $600,000. HIGH SCHOOL addn., PATCHOGUE, N. Y. Seton Hall High School, Sunrise Hy., Patchogue, N. Y. Beatty & Berlenbach, 32 Court St., Brooklyn 2, N. Y., archts.

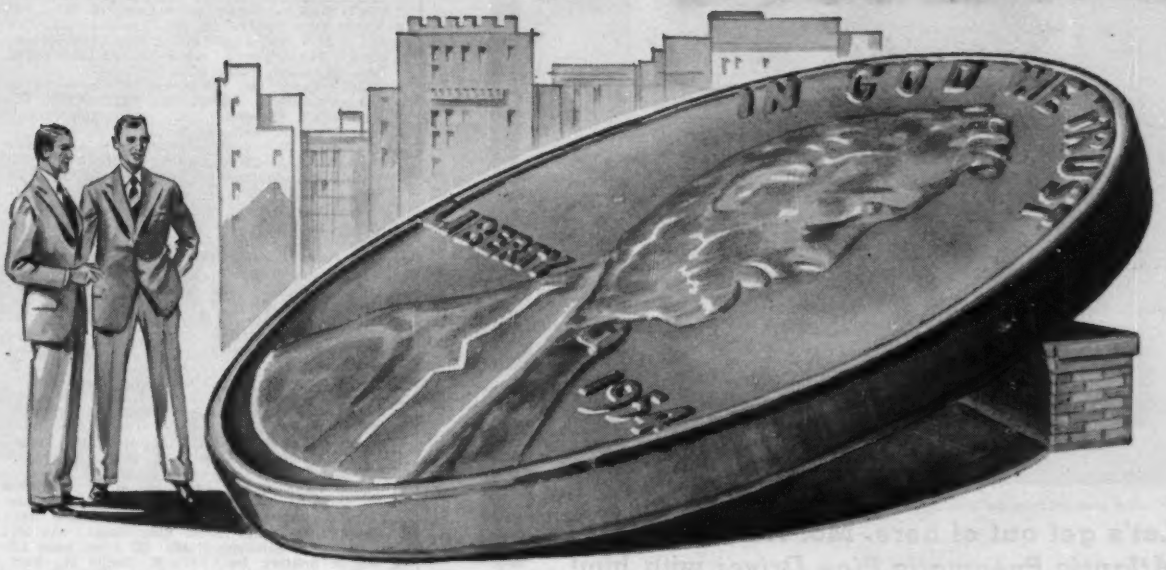
▲ **Raleigh Building Corp.**, c/o N. M. Obedin Co., 124 Jackson St., Hempstead, N. Y. Owner Builds. $3,700,000. 127 HOUSES, 32-acre tract at Island Ave. off Peninsula Blvd., WOODMERE, N. Y.

Henry M. Taggert, Inc., 1924 Chestnut St., Phila., Pa., LB, $420,500. 2 story, ELEMENTARY SCHOOL, Crosswicks St., BORDENTOWN, N. J. City Bd. Educ., Crosswicks St., Bordentown, N. J. Bids Mar. 29. CD 1/24.

Weny Bros. & Storms Co., McLean Blvd. and Ninth Ave., Paterson, N. J., CA, $600,000, FACTORY and OFFICE, 5-acre tract, CLIFTON, N. J. Standard Packing Corp., 629 Grove St., Jersey City, N. J. Engineers Co., Inc., 487 Orange St., Newark, N. J., engr.

▲ **Walter Kidde Constructors, Inc.**, 140 Cedar St., New York 6, N. Y., CA, $1,000,000, OFFICE and SERVICE at Route 53 and Fox Hill Road, DENVILLE, N. J. New Jersey Power & Light Co., 105 East McFarlan St., Dover, N. J.

(Continued on page 86)



You save a mighty pretty penny—

Sure do, when you have an Ozalid machine.

You lose no time waiting for prints. Make them as you need them. Place a drawing on translucent cloth on Ozalid sensitized paper. Feed into any Ozalid machine—and you get a finished, dry print, ready for use, in less than a minute. No fussing with variable solutions, no messy cleaning up afterwards.

You get the best prints—clear, accurate, legible, hold their size and color. And the cost per print is peanuts; a big white 24″x 36″ is only 8¢. The saving mounts up when you need tens or hundreds of prints for subcontractors and suppliers.

You save your originals. Expose them once to make duplicates, and you can put them in mothballs. The duplicate originals provide as many prints as you want, and can be revised without change to your originals. Detailed duplicates make the special prints for wiring' plumbing, air conditioning, insulation, and special installations—with considerable saving in drafting and design time.

THE SAME Ozalid machine makes copies of specifications, materials lists, work orders, purchase orders, instruction sheets, materials tags, shipping directions, progress reports, miscellaneous forms—anything written, typed, printed, drawn, on a translucent original.

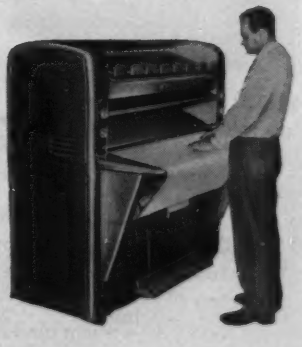
Actually, you're losing money every day you don't have an Ozalid machine. Ask the nearest Ozalid distributor (*see phone book*) to show you the model that fits your needs. Or write 146 Ozaway, Johnson City, N. Y. In Canada, Hughes Owens Co. Ltd., Montreal.

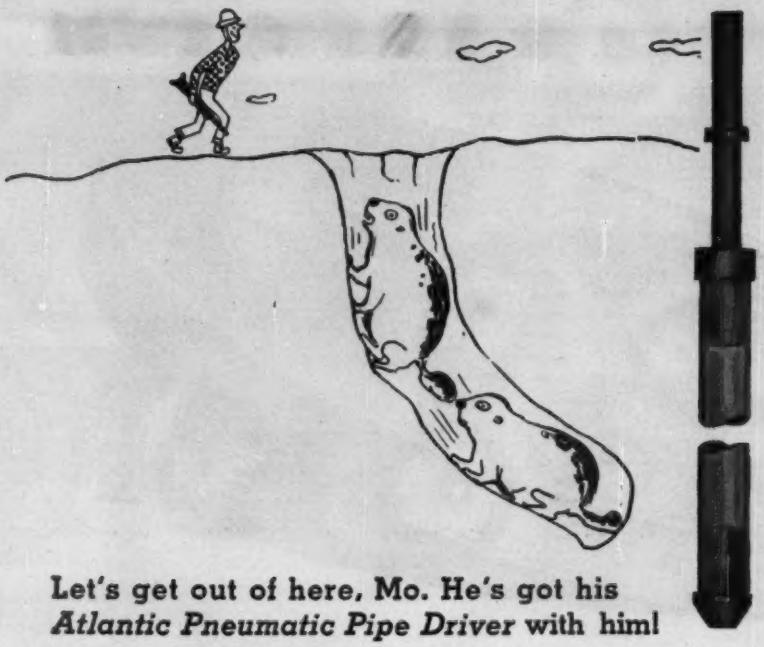
OZALID—A Division of General Aniline & Film Corporation... *From Research to Reality*

OZALID

OZAMATIC (*left*) *is a table model, moderately priced, handles sheets as wide as 16″, and can make up to 1,000 prints an hour*

PRINTMASTER 800 (*right*) *is the most efficient and versatile print machine ever made for the price... prints, develops in one continuous operation... handles sheet or roll stock up to 42″ wide, prints as fast as 42′ a minute.*





Let's get out of here, Mo. He's got his *Atlantic Pneumatic Pipe Driver* with him!

The Atlantic Pneumatic Pipe Driver is fast! No delay in coupling additional lengths of pipe—specially designed recess in driving head does not burr pipe. Universal joint action between driving head and shank simplifies driving in small spaces. Wide size range. Fits standard pneumatic pavement breakers. Send for Booklet 2.

ATLANTIC STEEL CORP.
Since 1918 . . . Always First with the Finest!
1775 Broadway, New York 19

Tho'
CAKED WITH CONCRETE
this phone never failed

Moving with the job as it progressed, this phone was one of a series used by the S. A. Healy Company on the Bowery Bay Sewerage Disposal job, almost five miles long.

Being subjected to such hardships is nothing new for HOSE-McCANN Sound Powered Telephones for they are made to operate just about everywhere with the same dependable service . . . under normal conditions or in any emergency.

NEED NO CURRENT. Activated by the sound energy of the voice, these phones operate at all times without batteries or other outside sources of current. For permanent installation on industrial projects or for temporary use on construction jobs, HOSE-McCANN Phones offer trouble-free performance with a minimum of upkeep.

INDOOR OR OUTDOOR MODELS
Available in selective or common ringing and semi-selective or common talking.

Write for illustrated catalog

HOSE-McCANN TELEPHONE CO., INC.
761 THIRD AVENUE
BROOKLYN 32, N. Y.

(Continued from page 84)

▲ **Pinewood Village,** 37 Park Ave., Dover, N. J. Separate Contracts. $3,000,000, 300 RESIDENTIAL DEVELOPMENT, Black Horse Pike, MAYS LANDING, N. J.

▲ **Walter Kidde Constructors, Inc.,** 140 Cedar St., New York 6, N. Y., CA, $1,000,000. 3 story OFFICE addn., MORRIS PLAINS, N. J. Warner-Chilcott Laboratories, Tabor Rd., Morris Plains, N. J.

▲ **Wyndale Constr. Co.,** 712 Market St., Camden, N. J. Separate Contracts. $8,500,000. RESIDENTIAL DEVELOPMENT, Somerdale Rd., etc., SOMERDALE, N. J. Lester H. Weckesser, Erlton, N. J., archt.

▲ **David Heim,** 26 Haddon Ave., Camden, N. J. Separate Contracts. $2,000,000, 140-unit RESIDENTIAL DEVELOPMENT, Cuthbert Rd. in Haddon Twp., WESTMONT, N. J. Lester H. Weckesser, Erlton, N. J., archt.

▲ **Joseph T. Mullray,** Newtown Sq., Pa. Separate Contracts. $2,520,000. RESIDENTIAL DEVELOPMENT, Darby Paoli Rd., BERWYN, PA.

▲ **S. Himmelfarb,** 5424 Euclid Ave., Phila., Pa. Separate Contracts. $3,000,000. 200 RESIDENCES, Verree Rd. and Glenn St., PHILA., PA. L. L. Levin, 311 S. 20 St., Phila., Pa., archt.

▲ **Welsh Grant Co.,** 2700 Knorr St., Phila., Pa. Separate Contracts. $4,000,000. RESIDENTIAL DEVELOPMENT, Tustin Ave., etc., PHILA., PA. Louis J. Cowan, 1505 Pine St., Phila., Pa., archt.

▲ **Rosemont Constr. Co.,** 101 Charles Dr., Bryn Mawr, Pa., LB $2,917,644, APARTMENT, RESTAURANT and GARAGE, WAYNE, PA. Chetwynd, Inc., 101 Charles Dr., Bryn Mawr. Pa., Severud-Elstad-Kruger, 415 Lexington Ave., New York, N. Y., engrs. CD 8/27.

▲ **Phillip Vizzini & Son,** 504 Stamford Rd., Baltimore 29, Md. CA $2,584,792. West-Southwest Junior-Senior High SCHOOL, Edmonson and Athol Aves., BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. CD 3/30, under LB.

▲ **Morrow Brothers, Inc.,** 2315 N. Charles St., Baltimore, Md., LB $2,004,700. Sudbrook Junior High SCHOOL, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson 4, Md. Bids Mar. 30. CD 3/16.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Ky, Lexington—BA 5/10—City, City Hall, refuse incinerating plant, $650,000. Plans deposit $25. Greeley & Hansen, 220 S. State St., Chicago 4, Ill., engrs. CD 6/15/54, under Public Buildings.

BIDS ASKED—BUILDINGS

Ga., Dalton—SCHOOLS—BA 5/3—State School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, City Park Elementary School; Emery Street Elementary and High School addn.; Dalton High and Elementary School. Plans deposit $50 each. P. B. Shepherd, James Bldg., Chattanooga, Tenn., archt.

Ga., Woodbine—SCHOOLS—BA 5/5—State School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, Kingsland Union Elementary School addn.; St. Mary's Elementary School addn.; Camden County Training School; Ralph Bunche High and Elementary School addn.; Camden County High School; Kingsland Elementary School; Tarboro Elementary School. Plans deposit $50 each. McDonald & Co., 41 Exchange Pl. S.E., Atlanta, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

VIRGINIA—Commonwealth of Va., Dpt. Hys., 1221 E. Broad St., Richmond,
rejected bids Mar. 16, 0.95 mi. constr. east leg Suffolk By-Pass, Proj. 1761-04-09, Nansemwood Co. LB $346,733. CD 3/21 under LB.

Vecellio & Grogan, 501 S. Kanawha St., Beckley, W. Va., CA, $232,000, relocating railway to eliminate 2 bridges in vicinity of Nemours, W. Va., Bluestone River change course and develop industrial site, Mercer Co., WEST VIRGINIA, Norfolk & Western Ry. Co. A. B. Stone, ch. engr. N & W Office Bldg., Roanoke 17, Va. Awarded Mar. 24.

GEORGIA—State Hy. Dpt., General Office, 2 Capitol Sq., Atlanta,

Ga.—**Hugh Steele Constr. Co.,** Center, Ala., LB, $541,240. grading, paving 6.894 mi. Fed. Aid Proj. F 037-1 (5), Monroe Co.;

Ga.—**W. L. Cobb Constr. Co.,** Decatur, Ga., LB, $155,621, base, surf. 6.706 mi. Fed. Aid Proj. S 0857 (1), Pickens Co.;

Ga.—**G. H. Law,** Gainesville, Ga., LB, $77,291. grading, base, surf. 3.195 mi. Fed. Aid Sec. Proj. S-1014 (1), Carroll and Haralson Counties;

Ga.—**Holliday Constr. Co. & Roy Seay Constr. Co.,** Greenville, Ga., LB, $145,309. grading, base, surf. 7.28 mi. Fed. Aid Sec. Proj. S-1062 (1), Contract 1, Heard and Carroll Counties;

Ga.—**Saunders & Perkins,** Newington, Conn., LB, $111,856, grading, base, surf. 9.176 mi. Fed. Aid Sec. Proj. S-1683 (1), Tattnall and Evans Counties. Bids Mar. 25. CD 3/16.

▲† **Hooper Constr. Co.,** P.O. Box 4471, Coral Gables, Fla., CA, $1,031,385, levees 2 and 3 Central and Southern Florida Control Proj., CIVENG-08-123-55-34;

Troup Bros., Inc., 251 S. Dixie Hy., Coral Gables, Fla., CA, $233,234, Canal 9, Section 4, Central and Southern Florida Flood Control Proj., CIVENG-08-123-55-38, FLORIDA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. CD 11/24/43.

ALABAMA—State Hy. Dpt., Montgomery,

Ala.—**Harper Brothers,** Fort Payne, Ala., LB $87,900. bridges 0.057 mi. over Swann Creek near Harris, Limestone Co.;

Ala.—**Goodwyn & Murphree,** Troy, Ala., LB $245,743, 0.302 mi. bridges from Mooresville to Elko on Decatur-

(Continued on page 89)

P&H MITI-MITE® (Model 55TC) on road work in Colorado

P&H Model 155, ½-yd. dragline working near Tulsa, Okla.

P&H ...20 YEARS OF ALL-WELDED CONSTRUCTION

Harnischfeger Corporation produced the *first* all-welded excavator early in 1935. Why? Because 20 years ago, Harnischfeger realized that all-welded construction on excavators gave features such as these to P&H users:

1. The strongest construction known . . . stronger per pound of weight than comparable cast construction.
2. The best suited material for each component part of the excavator! The manufacturer is able to select the right combination of alloy steels for a particular function.
3. The elimination of dead weight! Thru a liberal use of alloy steels, it's possible to build up strength exactly where it's needed most. Gone are beefed-up, power consuming castings.
4. Revolving frame, including side stands, is built entirely of rolled steels and welded as a rigid unit, permitting machining as a single unit to insure perfect alignment.

Thru the years, thousands of P&H owners have enjoyed these cost-cutting advantages on their jobs. And, today, *P&H buyers have the added benefits gained in two decades of experience and know-how in all-welded construction.* See your P&H dealer or write P&H Power Crane and Shovel Division, Harnischfeger Corporation, Milwaukee 46, Wisconsin.

HARNISCHFEGER

the P&H Line

P&H 255-A trench hoe (¾-yd.) on ditching job in Quebec

255-A truck crane clears land for new road. Long Island, N. Y.

TIGHT SQUEEZE

But Bucyrus-Erie 22-B Transit Crane Makes It Look Easy

This job, located along a narrow, tree-lined residential street in Pasadena, California, required the use of a compact clamshell-crane. A storm sewer trench had to be dug through tough decomposed granite and clay. Then, concrete pipe varying in diameter from 45 to 75 inches had to be installed.

The contractor on the job made the best possible choice: he put a Bucyrus-Erie 22-B Transit Crane to work. Assignments like this are tailor-made for this machine. It's easy to move around with its rubber-tired carrier — can work in tight, narrow quarters. You can use it, as this contractor did, for both excavating and crane work—clamshell, orange peel, and dragline are all operated on the regular crane boom. Above all, it's dependable—a machine you can count on for steady high production every time it starts a job.

Bucyrus-Erie Transit Cranes are available in two sizes — the 15-ton Model 15-B, the 25-ton Model 22-B. Your nearby Bucyrus-Erie distributor can give you complete information.

106E55

Power controlled load lowering is one of the features the operator likes best about this 22-B. It helps him set pipe into position quickly and accurately. The job is part of a 10-year flood control project in Los Angeles county.

Boom folding mechanism (optional equipment at extra cost) permits crane booms 60 feet and longer to be folded with jib suspended underneath for moves between jobs.

BUCYRUS ERIE

South Milwaukee, Wisconsin

(Continued from page 86)

Huntsville Road, Limestone and Madison Counties. Bids Mar. 25. CD 3/8.

† **Southeastern Constr. Co.**, 100 Minerva St., Jackson, Miss., CA, $238,688, base supply warehouse, Greenville Air Force Base, GREENVILLE, MISS. U. S. Eng., 2301 Grant St., Mobile, Ala. Bids Mar. 22. CD 3/4.

▲ **R. P. Farnsworth & Co., Inc.**, 1515 S. Saicedo St., New Orleans, La. LB $2,057,000. naval air reserve training hangar, Joint Air Reserve Training Center, Alvin Callender Field (Belle Chasse), NOY 82590, Spec. 42630, NEW ORLEANS, LA. Officer in Charge of Constr., Eighth Naval Dist., Bldg. 16, Naval Station, New Orleans (Algiers), La. Bids Mar. 30. CD 3/2.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort,

Ky.—**Breslin Constr. Co.**, 1433 S. Preston St., Louisville, Ky., LB, $86,187, b. conc. 1.178 mi. S 461 (2); SP 40-46, The Lancaster-Crab Orchard Road, Garrard Co.;

Ky.—**Saltsman Constr. Co.**, Bardstown, Ky., LB $113,658 traffic bound slag Alternate A, 12-in. steel piling, 0.871 mi. S 560 (1), SP 45-531 the Ky. 207-Naples Rd., Greenup Co.;

Ky.—**Warren Bros. Roads Co.**, 33 Cambridge Parkway, Cambridge, Mass., LB $816,287, b. conc. limestone aggreg. for Class I mix, 3.025 mi. U528 (14); SP 56-728 (56-898) The Louisville Inner Belt Line Road, Jefferson Co.;

Ky.—**The R. B. Tyler Co.**, 1446 Levering St., Louisville, Ky., LB, $643,275. b. conc. Class I surf. (limestone aggreg. for Class I mix) 2.67 mi. U 528 (16); SP 56-898 the Louisville Inner Belt Line Road, Jefferson Co.;

Ky.—**W. M. Hooper & Robert Hite**, Caneyville, Ky., LB $84,073. traffic bound limestone and bit. surf. 5.126 mi. S-538 (1); RS 90-705 The New Hope-Sulphur Lick Creek-Ky. 84 Road, Nelson Co.;

Ky.—**State Contr. & Stone Co.**, Hartford, Ky., LB $83,553 bit. surf. 13.3 mi. various roads, RS Group 2 (1955) Muhlenberg Co. Bids Mar. 25. CD 3/9.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Charles H. Thompkins Co**, 907 16th St. N.W., Wash., D. C., CA Est. $3,000,000. constr. 5-MOTEL type bldgs., south side 14th Street Bridge near 14th St. Bridge Hot Shoppe, ARLINGTON, VA. Hot Shoppes, Inc., 4115 Kansas Ave. N.W., Wash., D. C. Bids Feb. 28. CD 2/24.

Joseph Nebel Co., 3408 Wisconsin Ave. N. W. Wash., D. C. CA $575,687. MEDICAL OFFICE, 3713 N. Fairfax Dr., ARLINGTON VA. Medical Dental Assoc., Arlington Medical Center, 124 N. Highland St., Arlington, Va. Bids Sept. 22. CD 9/28, under LB.

▲ **Boush Constr. Co.**, 412 Flat Iron Bldg., Norfolk, Va. CA Est. $3,000,000. construct, manage, finance 100 units, HOUSING for U. S. Eng., foot of Front St., Norfolk, Va. FORT LEE, VA. E. Tucker Carlton, 206 E. Cary St., Richmond, Va. archt.

▲ **Baltimore Contractors, Inc.**, 711 S. Central Ave., Baltimore, Md., CA, $1,304,900, 290-student women's DORMITORY, MORGANTOWN, W. VA. W. Va. University, Bd. Governors, Administration Bldg., Morgantown, W. Va. Bids Mar. 5, awarded Apr. 1. CD 3/9.

▲ **Gaines Constr. Co.**, 1919 N. W. 17 Ave., Miami, Fla. CA, $1,879,173, 193 RESIDENCES, CAROL CITY, FLA. G-W Ten Inc., 1919 N. W. 17 Ave., Miami, Fla. Clifford Cooper & Assocs., 618 N. E. 124 St., North Miami, Fla., engrs. Awarded Mar. 31.

Forbes & Taylor, 361 Boiling Springs Ave., Lexington, Ky., CA, $508,299, AUDITORIUM GYMNASIUM and COMMUNITY BLDG., FRANKFORT, KY. City Bd. Educ., Frankfort, Ky. Bids Mar. 24. CD 3/30, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **INDIANA**—BA 4/20—Indiana Toll Road Comm., A. J. Wedeking, exec. dir., 309 W. Washington St., Indianapolis, Zone 4,
5 maintenance centers in Steuben, La Grange, St. Joseph, Laporte and Porter Counties. $1,900,000. Chas. W. Cole & Son, 220 La Salle St., South Bend, consult. engrs. CD 2/10/54.

▲ **INDIANA**—BA 5/4—Indiana Toll Road Comm. A. J. Wedeking, exec. dir., 309 W. Washington St., Indianapolis, Zone 4,
toll plazas and lighting in Steuben, La Grange, and Elkhart Counties, $3,550,000. Chas. W. Cole & Son., 220 W. La Salle St., South Bend, Ind., consult engrs. CD 2/10/54.

▲ **INDIANA**—BA 5/10—Indiana Toll Road Comm., A. J. Wedeking, exec. dir., 309 W. Washington St., Indianapolis, Zone 4,
10 service bldgs., Porter, La Porte, Elkhart, LaGrange and Steuben Counties. $6,500,000. Chas. W. Cole & Son, 220 W. La Salle St., South Bend, consult. engrs. CD 2/10/54.

BIDS ASKED—BUILDINGS

▲ **Ill., Calumet Park**—SCHOOL—BA 4/15—School Dist. 132 Wood St. and Vermont Ave., Calumet Elementary School. $2,000,000. Wm. J. Connor. & Assoc., 164 154 St., Harvey, archts.

▲ **Ind., Indianapolis**—HOSPITAL—BA 4/22—Indianapolis Hospital Development Assn., Inc., c/o D. A. Bohlen & Son, archts., 930 State Life Bldg., Zone 4, 5 story irregular, brick, stone trim St. Francis Hospital addn. $1,350,000. Plans deposit $50.

MULLER MIXERS and POWER TROWELS set quality standards in their fields

Muller's earliest objective—to make the best possible plaster and mortar mixer and sell it for the lowest possible price—was achieved by: (1) specialization on a few models . . . (2) careful selection of materials and components . . . (3) experienced workmanship . . . (4) sound distribution methods. Other Muller Machines, also, rank high in their fields for the same reasons.

PLASTER AND MORTAR MIXERS

Made in 2, 3½, 6, 6 to 8, and 9 cu. ft. sizes. Electric motor or gas engine power. All models have Muller Lifetime Paddle Shaft Seal to protect bearings. Power throwouts on smaller models, built-in disc clutch on larger. Many other features. Priced $180 to $996 FOB Factory. Rubber scraper blades are available for all sizes.

CONCRETE MIXERS

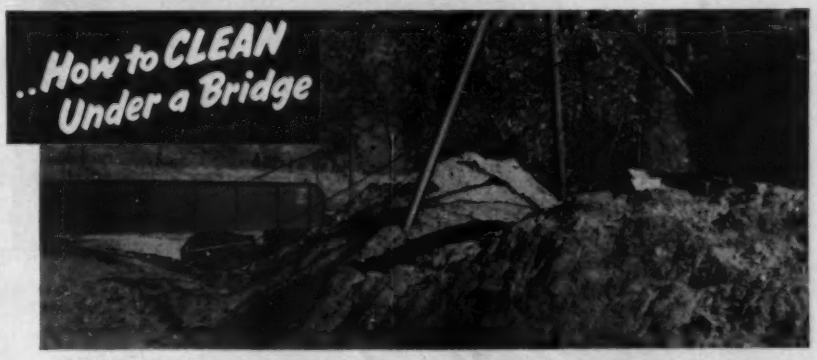
3 models, 3 to 6 cu. ft. capacities, tilting type. Ample size drums, fast mixing action, Timken Bearings, electrically welded, sturdy construction throughout. Power—electric motor or Briggs & Stratton Air Cooled Engines. Prices $230 to $660, FOB Factory.

POWER TROWELS

2 sizes—29" diameter, 1¾ HP; and 34", 2¼ HP Briggs & Stratton Engines. Stationary guide ring eliminates hand troweling when finishing along baseboard. Engine speed regulated by governor control on handle.

SEND FOR INFORMATION FOLDERS AND NAME OF LOCAL DEALER

MULLER MACHINERY COMPANY, Inc. Metuchen 21, New Jersey Cable Address MULMIX



You can clean under bridges and culverts . . . remove sediment from storm sewers . . . work in places which do not allow the head room other machines require . . . efficiently, economically . . . with a Sauerman Crescent Scraper powered by a skid mounted Sauerman Hoist or your tractor or boom machine hoist.

The Crescent, working between an anchorage and the hoist, will deposit excavated material anywhere along the span simply by reversing the forward pull. Through an opening no larger than its own width, the Crescent can be started through an underpass. It digs equally well on firm ground, boggy material or under water.

For full details, illustrations and representative cost figures on the use of a Crescent Scraper with your tractor, write for Field Report 209 and Bulletin 160. For information on the use of Crescent Scrapers with draglines, request Field Report 219 and Catalog J.

SAUERMAN BROS. INC.

632 S. 28th AVE. | BELLWOOD, ILL.

Ind., Hammond—SCHOOL—BA 4/25—St. Casimir Parish, 547 Huehn St., 1 story, L-shaped, 165x168 ft. and 68x143 ft. elementary school. $500,000. Kenneth Vaughn, 6714 Madison St., archt. CD 11/1.

SOON LETS CONTRACT—BUILDINGS

▲ Mich., Inkster—SHOPPING CENTER—Cherry Hill Plaza, 103 N. Telegraph Rd., Dearborn, soon lets contract Shopping Center. 30-stores, Cherry Hill and Inkster Rds. $1,000,000. Louis Redstone, 10811 Puritan St., Detroit, archt. CD 10/19.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ OHIO—State Hy. Dpt., Columbus, Zone 15,
O.—McNamara & Reder, R. D. No. 4, Delaware, O., LB $257,091, est. $288,800, Type T-35 on B-119 and structure, 1.151 mi. USR 36-4.37; SR 257-10.94, F 982 (3), Delaware Co.;
O.—D. R. Smalley & Sons, Inc., 436 W. Market St., Celina, O., LB $2,310,755, est. $2,622,000. Type T-71 and T-35 and structures 11.352 mi. USR 25-0.00, 23-.57; SR 71-13.73; USR 40-(16.62) (17.01), IN-196 (2), Village of Vandalia, Miami and Montgomery Counties;
O.-Robert J. Dienst & Son, 297 S. High St., Columbus, O. LB $880,001, est. $912,000, Type T-35 and structure 2.536 mi. SR 16-(5.36-7.05), Village of Whitehall, Franklin Co.;
O.-W. L. Harper Co., 2910 E. Highland Ave., Cincinnati, O., LB $479,918, est. $442,800, Type T-71 and structure 0.256 mi. USR 52-23.71, City of Cincinnati, Hamilton Co.;
O.-Max J. Zeller, Inc., 297 S. High St., Columbus, O. LB $182,904, est. $206,200, Type T-35, 9.106 mi. SR 75-(14.90) (16.52), (24.18), Village of Adamsville, Muskingum Co.;
O.—Mansfield Asphal Paving Co., Rear 153 Orange St., Mansfield, O., LB $97,642, est. $105,300, Type T-35. 6.916 mi. SR 13-25.39. Richmond Co.;
O.—S. E. Johnson Co., Box 29, Maumee, O., LB $91,981, est. $100,400. Type T-35, 2.842 mi. SR 118-0.00 Mercer-Van Wert, Van Wert Co. Bids Mar. 29. CD 2/25.
▲ INDIANA—State Hy. Comn., State House Annex, Indianapolis, Zone 4,
Ind.—Gast Constr. Co., Warsaw, Ind., LB, $585,085, est. $604,054. c. conc. paving 0.31 mi. for interchange ramps and 0.86 mi. c. conc. paving U. S. Road E of Fort Wayne, Allen Co.;
Ind.—Feigel Constr. Corp., 800 E. Michigan St., Evansville, Ind., LB, $923,555, c. conc. 4.09 mi. State Road 762, Posey Co. Bids Mar. 24. CD 3/11.
McCurdy Constr. Co., 906 Main St., Cincinnati, O., CA $871,124. distribution system;

Simplicity... the keynote of MODERN design

MORRISON Roly-Door steel sectional doors

RESIDENTIAL • COMMERCIAL • INDUSTRIAL

CLEAN, MODERN FUNCTIONAL SIMPLICITY that blends with all types of architecture is the hallmark of Morrison Roly-Doors.

SIMPLIFIED DESIGN ensures safe, easy, trouble-free installation and operation . . . manual, electrical and by remote control.

BONDERIZED, ALL-STEEL, WELDED CONSTRUCTION provides lasting good looks and a durability that defies the weather and years of hard use.

ECONOMICAL INSTALLED COST made possible by sound engineering and modern, precise, mass production . . . Roly-Doors cost no more than ordinary wood or metal doors for the same purpose.

OVER 100 STANDARD SIZES ready for immediate delivery and facilities to produce special sizes to individual specifications provide a Roly-Door for every overhead door requirement.

NATIONWIDE SALES AND SERVICE . . prompt delivery and expert installation service are offered by Roly-Door Distributors and Dealer-Installers located in the principal cities of the U. S. and Canada. They are listed in classified telephone directories.

Complete Roly-Door Specifications are available in Sweet's Architectural File or from:

Roly-Door Division

MORRISON STEEL PRODUCTS, INC.

653 Amherst Street, Buffalo 7, New York

Also manufacturers of MOR-SUN WARM AIR FURNACES and MORRISON SERVICE BODIES

In Canada, Roly-Door Distributors, Ltd., 1330 Bloor Street W., Toronto 4, Ont.

Readinger & Sons, Denning Woods, 32, Terre Haute, Ind., CA $182,619 pumping station bldg., BRAZIL, IND. Bd. P. Wks., City Hall, Brazil, Ind. Bids Feb. 15. CD 2/3.
▲ MICHIGAN—State Hy. Dpt., Stevens T. Mason Bldg., Lansing,
Mich.—Loselle Constr. Co., 1555 Goddard St., Wyandotte, Mich. and Sargent Constr. Co., 2840 Bay Rd., Saginaw, Mich. CA $2,106,640. 11.926 mi. dual 24 ft. c. conc., IN 58-57 C18-U (IN 424 13), BM 58-57 C19-R, Monroe Co.;
Mich.—Julius Porath & Son, 702 Transportation Bldg., Detroit, Mich., and Sugden & Sivier, 13100 Cloverdale St., Oak Park, Mich. CA $1,158,453. 1.082 mi. dual 36 ft. c. conc., UI 82-128 C-15 (UI 404 95), Wayne Co. CD 3/29, under LB.
▲† Hoyle & Newberg, Iron Mountain, Mich. CA $1,827,000. air field bldg., K. I. Sawyer U. S. Air Force Base, MARQUETTE, MICH. U. S. Eng., 600 Jefferson Ave., Detroit, Mich. Bids Mar. 10. CD 2/10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ Thomas J. Bon Tempo, 3711 Euclid Ave., Cleveland 14, O., CA $2,000,000. 125 ranch type brick, frame HOMES, BROOKLYN, O. Bonniebrook Estates, 14003 Lorain Ave., Cleveland 11, O.

Charles V. Maescher & Co., 2106 Florence St., Cincinnati, O. CA Est. $700,000. OFFICE and WAREHOUSE on 4-acres off Laidlaw Ave., CINCINNATI, O. U. S. Rubber Co., 1101 Central Parkway, Cincinnati, O. Cordes-Pressler-Houck, 4939 Paddock St., Cincinnati, O. archts. Karl Reik, 505 Elm St., Cincinnati, O., engr. Awarded Mar. 29. CD 1/18.

† S. N. Nielsen Co., 3059 Augusta Blvd., Chicago, Ill., CA $919,000. BLDG. No. 350, near LEMONT, ILL. Atomic Energy Comn., Lemont, Ill. Bids Mar. 29, awarded Mar. 30. CD 3/15.

▲ B-K Constr. Co., c/o Loebl, Schlossman & Bennett, archts., 430 N. Michigan Ave., Chicago 11, Ill., CA $2,500,000, 284,000 sq. ft. Old Orchard STORE, SKOKIE, ILL. Marshall Field & Co., State and Randolph Sts., Chicago, Ill. Awarded Mar. 28. CD 4/17/50.

▲ John Griffiths & Son Co., 228 N. La Salle St., Chicago 1, Ill., CA $4,886,693. 3 story, 155x302 ft., and 3 story, 180x261 ft. Trier HIGH SCHOOL addns., WINNETKA, ILL. School Dist. 203, 385 Winnetka Ave., Winnetka, Ill. Bids Dec. 20, awarded Mar. 30. CD 3/31, under LB.

▲ Kopman & Hassin, 13855 Nine Mile Rd., Oak Park, Mich. CA Est. $2,800,000. 140 ranch HOMES Williamsbury and Maple Sts., BLOOMFIELD, MICH. Bruton Realty Co., 15100 Fenkell St., Detroit, Mich.

J. A. Utley Co., 723 East 10-Mile Rd., Ferndale, Mich. CA $400,000. POWER PLANT, BOILER HOUSE addn. DETROIT, MICH. Chrysler Corp., 341 Mass. Ave., Highland Park 3, Mich. CD 3/11.

Henry C. Weber Constr. Co., Bay City, Mich. CA $540,000. 70x170 ft. T-shaped West Side EXCHANGE BLDG., GRAND RAPIDS, MICH. Michigan Bell Telephone Co., 365 Cass St., Detroit, Mich.

Kapler Pults Co., 4907 Leafdale St., Royal Oak, Mich. CA Est. $400,000. Lincoln Elementary SCHOOL addn. No. 1, VAN DYKE, MICH. Van Dyke School Dist. 5, Van Dyke, Mich. Bids Mar. 16. CD 3/7.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† Mo., Sedalia—GYMNASIUM—BA 4/26—U. S. Eng., 601 Davidson Bldg., Kansas City, Zone 8, gymnasium, Sedalia Air Force Base, ENG-23-028-55-73. Over $250,000. Extended date. CD 3/25.
▲ Minn., St. Cloud—BA 5/10—City, at Office A. J. Haberkorn, city clk., City Hall, water supply imprvs., river intake, raw water pumping station, 9 m.g. p.d. water filtration and softening plant adjacent to Mississippi River in Hester Park $1,000,000. Plans deposit $50, Consoer, Townsend & Assoc., 351 E. Ohio St., Chicago 11, Ill., consult engrs., adv. ENR 4/14. CD 1/5.
▲ Mo., Kansas City—AIRFRAME OVERALL STRUCTURE—BA 5/17—City, City Hall, Kansas City, Mo., Contract No. 7, airframe overall structures, Mid-Continent International Airport, for Trans World Airlines, $7,151,000. Plans deposit $250. Extended date. Burns & McDonnell, 95 and Troost Sts., Kansas City, Mo., engrs. CD 2/1.

BIDS ASKED—BUILDINGS

Tex., Lubbock—EDUCATION—BA 4/20—First Methodist Church, c/o Chairman Bldg. Com., Lubbock, 4 story, brick, stone, concrete, steel education bldg. $600,000. Plans deposit $25. Wyatt C. Hedrick Co., 1200 T. & P. Bldg., Fort Worth, archt. CD 1/14.
Tex., McAllen—SCHOOLS—BA 4/22—McAllen Independent School Dist., McAllen, addns. to group of 5 schools. $500,000. Plans deposit $15. Zeb Rike, 308 S. Main St., archt. CD 2/9.
▲ Tex., Houston—WAREHOUSE—BA 4/26—Sears, Roebuck & Co., 4207 Main St., warehouse, $3,250,000. Extended date. CD 3/30.
▲ Kan., Wichita—SCHOOL—BA 5/2—Bd. Educ., 428 S. Broadway, Truesdell School, $1,300,000, Hibbs, Robinson & Pettit, 519 S. Broadway, archts. CD 3/1.
Neb., Lincoln—SCHOOL—BA 5/6—Bd. Educ., 720 S. 22 St., Holmes School addn. $400,000. Davis & Wilson, 225 Stuart Bldg., archts. CD 2/15.
▲ Minn., Brainerd—SCHOOL—BA 5/12—Bd. Educ., Mrs. J. A. Thabes, clk., Garfield Grade School, Riverside Grade School and Edison Grade School, $1,700,000. Plans deposit $30 each school, H. H. Swanson, 500 Sexton Bldg., Minneapolis, archt. CD 11/17/53.

(Continued on page 92)

New Money Maker for your job . . . Ford Tandem Axle T-800 BIG JOB takes payloads (with body) to 30,010 lbs.—up to 2 tons more than other trucks in this class. Short Stroke 170-h.p. V-8. Heavy duty 11,000-lb. front axle for greater front-end capacity, auxiliary transmissions and full-air brakes available. Rubber-bushed rear suspension. Power Steering standard.

To get the most for your money

LOOK UNDER THE HOOD!

Make sure your next truck has a modern short-stroke engine—that gives gas savings of up to 1 gallon in 7 . . . prolongs piston ring life up to 53%. Only Ford offers Short Stroke power in *every* engine.

Short Stroke engine design for trucks is making headlines. In some makes of trucks it's still in a development stage. In others, it has reached the early production stage. *But only in Ford Trucks has it been advanced by over 3 years of experience and more than 5 billion miles of service.* Only Ford Trucks offer Short Stroke design in every engine, V-8 or Six, *for EXTRA long life!*

Look under the hood for gas-saving Short Stroke power. Look behind the wheel for driver-saving *Driverized* Cab comfort. Look over the axle for trip-saving payload capacity. Ford Triple Economy Trucks give you all three! Call your nearest Ford Dealer now for complete information.

Look under the hood for an engine with a "stroke" as short as, or shorter than its "bore." That's a modern *short-stroke* engine—the *Ford* kind of engine that gives you: reduced piston travel and piston speeds . . . up to 33% less friction, more usable power . . . gas savings up to 1 gallon in 7 . . . less wear on vital moving parts and much longer engine life!

Ford Triple Economy Trucks

THE MONEY MAKERS FOR '55

Erects itself . . . completely set up in only 23 minutes.
Pay only one man instead of 5
Tow it right to the jobsite.
Ready-rigged tower unfolds like a jack-knife.

...with BUCK Heavy-Duty Hoisting Machine

Save profits for yourself. Instead of hiring four or five men to set up hoisting operations, use only *one* . . . and the BUCK Hoisting Machine.

BUCK erects itself, works itself, lowers itself . . . lifts full ton of materials to any desired level. Tower is self-erecting to 40 ft. unloading height . . . can be used with easy-to-add sections for greater height. Automatically retracting wheels eliminate heavy lifting, skidding and jacking. Self-dumping concrete bucket and Chicago boom available as accessories.

Get better acquainted with BUCK. Write for all the money-saving facts today.

Some desirable territories open to dealers . . . write for details.

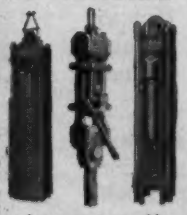
BUCK EQUIPMENT CORP.
207 BUTLER ST., CINCINNATI 2, OHIO

GUNITE Since 1915
CONCRETE
SAND AND CEMENT Placed by Air

We have completed over 2800 exclusive GUNITE contracts including — LININGS ENCASING — INSULATING — REPAIRING NEW CONSTRUCTION.
Send for specifications and bulletins
See our catalog in Sweet's

GUNITE CONCRETE & CONST. CO.
1301 WOODSWETHER RD., KANSAS CITY 5, MO
2016 W. WALNUT, CHICAGO 12, ILL.
3206 HOUSTON, HOUSTON 7, TEX.
St. Louis · Milwaukee & Twin Cities · Denver · New Orleans · Memphis

McKIERNAN-TERRY
WIDE-RANGE LINE OF
PILE HAMMERS
AND
EXTRACTORS



Now made in complete standardized line of 11 double-acting hammers, 5 single-acting hammers and 2 double-acting extractors. Also Sand Drain Equipment and Steam Generators.

Write for free descriptive Bulletins.
Also builders of coal and ore bridges and unloaders, and specially designed machinery.

McKIERNAN-TERRY CORP.
80 Richards Ave., Dover, N. J.

(Continued from page 90)

SOON LETS CONTRACT—BUILDINGS

▲ **Mo., Richmond Heights (St. Louis 19 P.O.)**—SHOPPING CENTER—Stix, Baer & Fuller Co., Arthur B. Baer, pres., 6 St. and Washington Ave., St. Louis, Zone 1, soon lets contract 1 story, bsmnt., 122x290 ft., Bldg. A, 1 story, bsmnt., 122x314 ft. Bldg. E, addnl. brick, concrete, block, stone, steel bldgs. for Westroads Shopping Center, Brentwood Blvd. and Clayton Rd. $1,000,000. Jamieson, Spearl, Hammond & Grolock, 1696 Arcade Bldg., 812 Olive St., St. Louis, Zone 1, archts. CD 5/19.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Lysne Constr. Co., Blooming Prairie, Minn., CA $917,461, sewage treatment plant, ALBERT LEA, MINN. City, R. L. Van Nocker, mgr., Albert Lea, Minn. Bids Mar. 22. CD 3/29, under LB.

▲ **Megarry Bros.**, St. Cloud, Minn. CA, grading, drainage;

Roel Constr. Co., Inc., 20 N. 14½ St., Fargo, N. D., CA, four bldgs. and locomotive inspection pit, bldgs. incl. freight house and transfer platform, 102x600 ft.; 144x300 ft. car repair shop; combination yard office and control tower, and an office for the hump master of the yard;

Own Forces, track laying, MINOT, N. D. Total est. $6,000,000. Great Northern Ry. Co., R. R. Manion, ch. engr., 175 E. 4 St., St. Paul, Minn. Bids Mar. 23. CD 3/9.

† **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex. CA $876,936, air national guard facilities, Lincoln Air Force Base, Inv. 25-066-55-66, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Mar. 16. CD 3/22, under LB.

▲† **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex. CA $1,037,887, storage facilities for ordnance storage area, Lincoln Air Force Base, Inv. 25-066-55-73, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb., Bids Mar. 29. CD 4/1, under LB.

▲ **KANSAS**—Kansas Turnpike Auth., Emporia, Kan.—**Frost Constr. Co.**, Hydro, Okla. LB $432,474. ten multiple span steel beam bridges, Proj. 2-5-B (1), Summer and Sedgwick Counties;

Kan.—**F. Marbut**, Columbia Bldg., Emporia, Kan. LB $330,595. five structures, steel beam, continuous spans, Proj. 3-9-B (1), Sedgwick Co.;

Kan.—**Rhoades Constr. Co., Inc.**, 413½ Main St., Newton, Kan. LB $504,491. eight continuous span steel beam and one continuous welded girder bridge, Proj. 3-10-B (1), Butler Co. Bids Apr. 1. CD 9/30, under Streets and Roads.

▲ **KANSAS**—Kansas Turnpike Auth., Emporia,
Kan.—**Grosshans & Petersen, Inc.**, Marysville, Kan. LB $288,154. grading, drainage 7.23 mi. Proj. 2-5-E (1), Summer and Sedgwick Counties;

Kan.—**Roberts Constr. Co.**, 1018 Trust Bldg., Lincoln, Neb. LB $363,541. grading, drainage 5.72 mi. Proj. 2-6-E (1), Sedgwick Co.;

Kan.—**Amis Constr. Co.**, P.O. Box 1871, Oklahoma City, Okla. LB $687,973. grading, drainage 7.11 mi. Proj. 6-22-E (1), Lyon Co.;

Kan.—**M. W. Watson**, 1004 National Bank Bldg., Topeka, Kan. LB $688,706. grading, drainage 9.54 mi. Proj. 6-23-E (1), Lyon, Osage and Wabaunsee Counties;

Kan.—**Bennett Constr. Co.**, 3001 N. Seventh Street Trafficway, Kansas City, Kan. LB $499,382. grading, drainage 4.83 mi. Proj. 9-35-E (1), Leavenworth Co. Bids Apr. 1. CD 9/30.

▲ † **Lawless & Alford, Inc.**, Box 600, Austin 64, Tex. LB, $2,514,178, seventeen 2 story airmen's dormitories and mess bldg., Clinton-Sherman Air Force Base, NOY 77555, CLINTON, OKLA. Bureau Yards & Docks, Dpt. Navy, Bldg. 16, New Orleans (Algiers), La. Bids Mar. 24. CD 3/2.

Lone Star Gas Co., 1915 Wood St., Dallas, Tex. Own Forces. $300,000. addnl. gas distr. line, DALLAS, TEX. CD 2/9.

† **Nolan Bros., Inc.**, Builders Exchange, Minneapolis, Minn., LB $950,647, est. $966,010, warm-up pad, apron stub service, taxiway strengthening, widening and tow vehicle pad, Carswell Air Force Base, ENG-41-443-55-98, FORT WORTH, TEX. U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Tex. Bids Mar. 29. CD 3/14.

† **Quisle Constr. Co.**, 417 T & P Bldg., Fort Worth, Tex., LB, $361,058, est. $349,032, airmen's service club and officers mess, Wolters Air Force Base, ENG-41-443-55-86, MINERAL WELLS, TEX. U. S. Eng., 100 W. Vickery Blvd., Fort Worth, Tex. Bids Mar. 30. CD 3/9.

BUILDINGS

LOW BIDS AND CONTRACTS

C. H. Peterson Constr. Co., 616 National Bldg., Minneapolis, Minn., LB $679,900, WAREHOUSE and OFFICE addn., at site, HOPKINS, MINN. Super Valu Stores, Inc., T. R. Harrison, pres. Hopkins, Minn. Bids Mar. 22. CD 3/9.

Kraus-Anderson, Inc., 501 S. 8th St., Minneapolis, Minn., CA Approx. $700,000. WAREHOUSE and OFFICE, Joppa Ave. and Hy. No. 7. ST. LOUIS PARK, MINN. Reinhard Brothers Co., 111 S. 9 St., Minneapolis, Minn. Bids July 23. CD 7/20.

Hazelwood Reorganized School Dist., R-1, Bd. Educ., Clifford, Kirby, supt. Schools, Elm School Hy. 140 and Taylor Road, Hazelwood, Mo., returned bids Mar. 25 unopened, 1 story, 58x159 ft. Elm Grove SCHOOL addn. and GYMNASIUM-AUDITORIUM addn. to Larimore School. HAZELWOOD, (St. Louis, 20), Mo. $350,000. New Bids Apr. 8. Raymond X Greuninger, 4 S. Central Ave., Clayton 5, Mo., archt. CD 3/15.

▲ **Robert O. Reich**, 7501 E. 37 St., Kansas City, Mo. Owner Builds. $2,500,000. SHOPPING CENTER, KANSAS CITY, MO. CD 9/9.

(Continued on page 94)

(Continued from page 92)

Platt Constr. Co., 8147 Delmar Blvd., University City

ERIE STRAYER TRUCK MIXER PLANT DELIVERS FOR LIMESTONE READY MIX OF NASHVILLE, TENN.

Faster Operation • Higher Output • Better Profit

The CTES, 160-YD Erie Strayer Truck Mixer plant installed by Limestone Ready Mix Co. One-man operation with faster batching and higher output increased their profits—earned a repeat order for distributor, Industrial Tractor and Equipment Co., Nashville.

SLOW SERVICE to suburban users, and long, dead hauls posed a problem for Limestone Ready Mix Co., Nashville, Tenn. They licked it with an Erie Strayer Truck Mixer Plant, installed at Madison—seven miles from downtown Nashville.

Six months later, T. C. Petty, general manager has this to say: "Our Erie Strayer has more than filled the bill. Now we can make fast deliveries of specification concrete—our customers are pleased!"

Mr. Petty names these Erie Strayer features as the reason for this satisfactory, fast service:

1. **Easy, economical erection.**
2. **Bins and batching equipment of quality materials and efficient design.**
3. **Accessible, workable controls.**
4. **Easy filling of bin compartments—maximum protection from contamination for other aggregates.**
5. **Free flow of materials from bins and batcher. Vibrator needed only on cement.**
6. **High output capacity.**

NEW ORDER UNDER WAY

Now Limestone Ready Mix is replacing their central plant in Nashville. James T. Wall, president, has specified an Erie Strayer Big Batch Plant. Like the Erie Portable, the Erie Big Batch Plant is soundly engineered. Both plants have the same fine features—only the size is different.

For literature, write Dept. R45
Cable Address: EXIMPORT

ERIE STRAYER COMPANY

245 GEIST RD. ERIE, PENNSYLVANIA

How to get to the top . . .

SAFELY

A sure and safe way to get your employees upstairs and downstairs safely is to install Hendrick Shur-Site Treads for stairs and fire escapes. Hendrick treads not only improve safety records and keep accidents down to a minimum but their 90% open area lets more light and air in . . . improves working conditions and boosts employee morale.

Furnished in standard sizes or in special widths and lengths, they're shipped ready to bolt direct to stair stringers. A heavy flanged nosing-bar provides extra reinforcement and plainly marks the edge of each step for safety's sake. Bars are square edged and uniformly spaced for extra wear, long life and good draining characteristics. For more information write Hendrick direct.

Hendrick
MANUFACTURING COMPANY

SEE OUR CATALOG IN SWEET'S

45 DUNDAFF ST., CARBONDALE, PA. • *Sales Offices in Principal Cities*

Perforated Metal • Perforated Metal Screens • Wedge-Slot and Wedge-Wire Architectural Grilles • Mitco Open Steel Flooring • Shur-Site Treads • Armorgrids

Another Job Done Better With The ALL-NEW 'Jeep'®

PROSPECTING

This 'Jeep'-mounted drill goes wherever there is need for an earth-boring job. With the extra traction of its 4-wheel-drive and high maneuverability, the Universal 'Jeep' reaches locations where conditions are too tough for ordinary vehicles. Power for the drill is supplied from the 'Jeep' engine through power take-off. Get the full story on this self-propelled, self-powered drill that does everything from prospecting to soil sampling. See your Universal 'Jeep' dealer.

WILLYS MOTORS, INC., TOLEDO 1, OHIO

The 'Jeep' Family of 4-Wheel-Drive Vehicles . . . UNIVERSAL 'JEEP' • TRUCK • STATION WAGON • PANEL DELIVERY

THE WORLD'S MOST USEFUL VEHICLES

(Continued from page 92)

Platt Constr. Co., 8147 Delmar Blvd., University City 24, Mo., CO $350,000. 1 story, 75x125 ft., rein.-con., brick, masonry, steel SUPERMARKET, 4250 N. 20 St. and parking facilities, ST. LOUIS, MO. Irvin Goldfarb, c/o 8147 Delmar Blvd., University City 24, Mo. Robert McMahon, 8147 Delmar Blvd., University City 24, Mo., archt. National Food Center, 1106 Central Industrial Dr., St. Louis 10, Mo. lessee. CD 8/21/53.

▲ **C. E. Vollmer Constr. Co.**, 840 N. Main St., Wichita, Kan. CA $1,927,557. general contract. , **Geren Sheet Metal Works**, 535 N. Washington St., Wichita, Kan. CA $542,137. plumbing, heating for Southeast High SCHOOL, WICHITA, KAN. Bd. Educ., 428 S. Broadway, Wichita, Kan. CD 3/22, under LB.

Tellepsen Constr. Co., 1710 Telephone Rd., Houston, Tex. CA $376,115, BULK TERMINAL STATION (for bulk station, truck terminal, warehousing, garage shop, loading and unloading docks), BAYTOWN, TEX. Humble Oil & Refining Co., Baytown, Tex. CD 2/10.

Avery Mays Constr. Co., 7917 Preston Park Dr. Dallas, Tex., CA $875,000. SHOPPING CENTER, DALLAS, TEX. Casa View Village, 7917 Preston Park Dr., Dallas, Tex. CD 3/30.

Marshall Constr. Co., 4008 Center St., Houston, Tex. CA $555,400. Bid 1, Deepwater Elementary SCHOOL; Bid 3, 43,800 sq. ft. STADIUM addn., DEER PARK, TEX. Deer Park Independent School Dist., Deer Park, Tex. Bids Mar. 24. CD 3/2.

George A. Fuller, 410 Gibraltar Bldg., Dallas, Tex., CA Est. $500,000. 200,000 sq. ft. concrete, steel WAREHOUSE, FORT WORTH, TEX. S & H Green Stamp Co., 114 Fifth Ave., New York, N. Y. CD 3/24.

James T. Taylor & Son, Box 225, Fort Worth, Tex., CA $545,917. LIBRARY and SCHOOL of THEOLOGY wings, FORT WORTH, TEX. Southwestern Baptist Theological Seminary, c/o Seminary Hill, Fort Worth, Tex. Bids Mar. 10. CD 3/23, under LB.

Brookline Corp., 3848 Bellfontane St., Houston, Tex. Owner Builds. $364,125, 27 DWELLINGS, HOUSTON, TEX. CD 3/16.

▲ **Tellepsen Constr. Co.**, 1710 Telephone Rd., Houston, Tex., CA $1,250,000. 10 story OFFICE, HOUSTON, TEX. Greenbriar Corp., c/o Cecil V. Hagen, Gulf Bldg., Annex, Houston, Tex. CD 4/1.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Calif., Muroc**—STORAGE FACILITY—BA 4/27—U. S. Eng., 751 S. Figueroa St., Los Angeles, bulk fuel storage facility, Edwards Air Force Base, ENG-04-353-55-125, $250,000. CD 8/18.

▲† **Calif., San Bernardino**—SHOP—BA 4/27—U. S. Eng., 751 S. Figueroa St., Los Angeles, shop, Norton Air Force Base, ENG-04-353-55-127. $2,000,000. CD 11/13/51.

▲† **Calif., Muroc**—FLIGHT TEST HANGAR—BA 4/28—U. S. Eng., 751 S. Figueroa St., Los Angeles, flight test hangar, Edwards Air Force Base, ENG-04-353-55-126. $2,00,000. CD 8/18.

BIDS ASKED—BUILDINGS

▲ **Calif., Bakersfield**—COLLEGE—BA 4/25—Kern County High School and Junior College Dist., 312 Bernard St., Group III bldgs. at Bakersfield College. $1,200,000. Wright, Metcalf & Parsons, 2323 "E" St., archts. CD 2/6/53.

▲ **Calif., San Jose and Santa Clara**—SHOPPING CENTER—BA About 6/1—Capital Co., 1 Powell St., San Francisco and Macy's Stockton and O'Farrell Sts., San Francisco, Valley-Fair Regional Shopping Center. $8,000,000. Victor Gruen Associates, 8460 Santa Monica St., Los Angeles, Calif., archts. CD 5/27/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

C. M. Corkum Co., 2630 S. W. 2nd St., Portland, Ore., LB $564,800, reconstr. 1,000 lin. ft. ship-repair wharf, PORTLAND, ORE. Port of Portland, Box 4099, Swan Island, Portland, Ore. Bids Mar. 25. CD 3/2.

▲† **Oberg Bros. Constr. Co.**, P.O. Box 640, Inglewood, Calif., CA, $1,454,838, Easton Wash channel, Encinita Ave. to Rio Hondo Channel, Mile 2.42 to Mile 0.09, Los Angeles Co. Drainage Area, CIVENG-04-353-55-26, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 3. CD 3/10, under LB.

▲ **Gunther-Shirley-Lane**, 4460 Sherman Oaks Ave., Sherman Oaks, Calif., LB, $2,794,678, pilot knob hydro plant, IMPERIAL, CALIF. Imperial Irrigation Dist., Imperial, Calif. Bids Mar. 29. CD 3/4.

Fred S. Macomber, 8818 Melrose Ave., Los Angeles, Calif., CA, $355,867, shower-locker bldgs. and swimming pool, MONROVIA, CALIF. Monrovia-Duarte High School District, Monrovia, Calif. Bids Mar. 23, awarded Mar. 25. Smith, Powell & Morgridge, 208 W. 8 St., Los Angeles, archts. CD 11/3, under Public Buildings.

▲ **Morrison-Knudsen Co., Inc.**, and **Stolte, Inc.**, 411 W. 5 St., Los Angeles, Calif., CA $1,158,185 Seaside Storm Drain and Interceptor, Long Beach, Proj. 132, LOS ANGELES, CALIF. Los Angeles County Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids Mar. 18. CD 3/24, under LB.

▲† **George A. Fuller Co.**, 3100 W. 8 St., Los Angeles, Calif., LB, $4,990,584 Test Facility 1-A, ENG-04-353-55-72; LB $597,018, research laboratory, ENG-04-353-55-114, Edwards Air Force Base, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 29.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **J. I. Barnes Constr. Co.**, Central Bldg., Seattle 4, Wash. CA $1,474,860, two 4 story rein.-con. men's RESIDENCE HALLS and remodeling of third, PULLMAN, WASH. Washington State College, Pullman, Wash. Bids Mar. 22. CD 3/25, under LB.

J. E. Stark, 1131 E. A St., Ontario, Calif., LB, $595,652. reinforced brick Chino High SCHOOL addn., CHINO, CALIF. Chino School District, Chino, Calif. Bids Mar. 4. CD 2/21.

Jack H. MacDonald, 8943 Wilshire Blvd., Los Angeles, Calif., CA, $913,000, 220,000 sq. ft. WAREHOUSE, 4440 E. 26 St., EAST LOS ANGELES, CALIF. John M. Stahl, 8943 Wilshire Blvd., Beverly Hills, Calif. CD 3/20/51.

Whiting Constr. Co., 450 S. Beverly Dr., Beverly Hills, Calif, CA, $444,325, 39 frame, stucco DWELLINGS, W Orangethorpe and Woodcrest Ave., LAKEWOOD, CALIF. Gainford Homes, Inc., 450 S. Beverly Dr., Beverly Hills, Calif. Palmer & Krisel, 827 Moraga Dr., Los Angeles, Calif., archts.

Shaw Constr. Co., 14328 Valley View, La Mirado, Calif. Owner Builds. $480,000. 50 frame, stucco DWELLINGS, Rosecrans, Alicante, Avion and Bara Sts., LA MIRADA, CALIF. CD 2/2.

Harry Brittain, Inc., 13541 E. Telegraph Rd., Whittier, Calif. Owner Builds. $938,200. 93 frame, stucco DWELLINGS, Oakburry, Costa Mesa, Anza and Beregs St., LA MIRADA, CALIF.

La Mirada Woods Bldg. Co., 1166 E. 58 St., Los Angeles, Calif. Owner Builds. $612,000. 60 frame, stucco DWELLINGS, Hayford St., Caseo Ave., Tricia Lane, LA MIRADA, CALIF. Wm. M. Bray, 962 N. La Cienega Blvd., Los Angeles, Calif., archts.

CANADA

BIDS ASKED—BUILDINGS

Ont., London—SERVICE STATION, etc.—BA 4/19—Defence Constr. Ltd., 56 Lyon St., Ottawa, P O L service station RCE offices, stores and workshop and lumber and pipe storage rack, Army Station. $600,000. Plans deposit $100. CD 3/18/53.

SOON LETS CONTRACT—BUILDINGS

Ont., Toronto—CHURCH—Clarkson Lorne Park United Church, c/o Hanks & Irwin, archts., 2848 Bloor St. W., soon lets contract 2 story church, incl. auditorium and Sunday School classes, Clarkson Rd. $500,000.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Community Enterprises Ltd., 5665 Pare St., Montreal, Que., CA, $500,000, 300x134 ft. by 58 ft., timber frame asbestos siding hangar at Dorval Airport, MONTREAL, QUE. Timmins Aviation Ltd., 1980 Sherbrooke St. W., Montreal, Que. Awarded Mar. 28.

BUILDINGS

LOW BIDS AND CONTRACTS

Economy Constr. Co. Ltd., 985 College St., Toronto, Ont. Owner Builds, $616,000, 77-suite APARTMENT, Russell Hill Rd. and St. Clair Ave. W., TORONTO, ONT. CD 11/19.

ALASKA

BUILDINGS

LOW BIDS AND CONTRACTS

† **Macri-Montgomery Constr. Co.**, Anchorage, Alaska, LB $552,900, 54x100 ft. rein.-con. advanced underseas weapons SHOP at Naval Base, Spec. 37592, KODIAK, ALASKA. P. Wks. Officer, 17th Naval Dist., Kodiak, Alaska. Bids Mar. 25. CD 2/9.

FOREIGN

BIDS ASKED—HEAVY CONSTRUCTION

Iraq—BA 6/29—Directorate General of Municipalities Ministry of Interior, Govt. of Iraq, Baghdad, supply, erection, construction and complete installation of primary and secondary settlement tank flocculation tank flash mixer alumina dosing apparatus gaseous chlorinator, electrically operated pumping plant, elevated service tank, suction and rising mains, venturi meter pump house, building and all auxiliary works in new water supply scheme for Majar Al-Kabir Amara Liwa of 331,200 g.p.d. Plans deposit ID. 5.

Proposed Projects

WATER SUPPLY

Ill., Cahokia—Village Bd. Trustees, William Miskell, mayor, voted $750,000 bonds, sewers and water system imprvs., extens. David J. Johnston, 129 N. 3 St., East St. Louis, consult. engr. CD 3/16.

SEWERS, WASTE DISPOSAL

▲ **Ky., Frankfort**—City, City Hall, sewage disposal plant, sewer extens. and pumping stations. $2,000,000. Oberwarth & Livingston & Assoc., 301 W. 2 St., Frankfort, Ky., archts. Howard K. Bell, 553 S. Limestone St., Lexington, consult engr. CD 5/5/50.

Mich., Albion—City, Mayor Charles E. Hughes, sewage plant treatment facilities. $500,000. Hugo A. Reiger, city engr.

A flick of the finger and you get a powerful response from the Davis Loader. It's ideal for hundreds of industrial jobs that require a loader that will "go all the way." Its quality, but rugged construction, is built to take the licks expected of this type of equipment, and at the same time its exclusive rubber mounting and "shock slots" absorb the shock load on the tractor. It has down pressure, *plus many other top features.* See it at your dealers...or send coupon for literature.

FITS ALL POPULAR TRACTORS
AVAILABLE WITH THESE ATTACHMENTS

- MATERIAL BUCKET WITH HIGH-CARBON STEEL CUTTING EDGE
- UTILITY BUCKET
- SCARIFIER
- DOZER
- CRANE

Send Coupon for FREE Literature

Please send me free literature on the Davis Loader to fit a _____ tractor.

Name _____

Address _____

Town _____ State _____

MID-WESTERN INDUSTRIES, INC. 1009 SOUTH WEST ST., DEPT. N. WICHITA, KANSAS

Another Job Done Better With The ALL-NEW 'Jeep'®

REACHING REMOTE WORK SITES

Beyond the road's end, where the going is rough and steep, you can depend on the sure-footed 4-wheel-drive pulling power of the Universal 'Jeep' to take you right to the job. With a 'Jeep' you can climb steep grades, maneuver your way in dense woods, traverse loose rock and sand—*and get there!* That is why the 'Jeep' has become essential equipment for engineers, surveyors, geologists, miners and lumbermen. Get a demonstration.

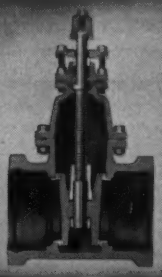
WILLYS MOTORS, INC.
TOLEDO 1, OHIO

The 'Jeep' Family of 4-Wheel-Drive Vehicles... UNIVERSAL 'JEEP' • TRUCK • STATION WAGON • PANEL DELIVERY

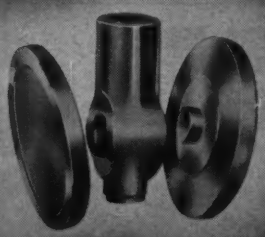
THE WORLD'S MOST USEFUL VEHICLES

R. D. WOOD GATE VALVES PROVIDE POSITIVE FLOW CONTROL AFTER YEARS IN THE LINES

Here's what the R. D. Wood Gate Valve looks like from the outside—rugged, simple, streamlined. It is built for generations of dependable service in the lines. Available with all pipe connections, including mechanical joint.



Strip it down to a sectional view and you can see why interruptions in service are rare. There's virtually nothing to go wrong—none of the complicated small parts that fail in an emergency because sediment and scale render them inoperable.



Bring the R. D. Wood Gate Valve down to its essentials and you have the spreader and two discs. Rising or descending, discs are free to revolve completely, thus distributing wear evenly. In closing, discs are fully lowered before spreading action begins. Fully opened, components move out of the water way, providing full pipe capacity.

R. D. WOOD COMPANY

Public Ledger Building, Independence Square

Philadelphia 5, Pa.

Manufacturers of Mathews Hydrants and "Sand-Spun" Pipe (centrifugally cast in sand molds)

"GUNITE"

NEW CONSTRUCTION AND REPAIRS

- Prestressed Tanks
- Repair all Types Distintegrated Concrete
- Dam Reconstruction and Repairs
- Linings and Repairs to Reservoirs, Stacks, Bunkers, Sewers, Tanks, Tunnels, Pen Stocks
- Structural Steel Encasements
- Restoration of Masonry Structures

Experienced Personnel

Write for our new 48 page Bulletin

PRESSURE CONCRETE CO.

Gunite Contractors and Engineers

193 Emmett Street Newark 5, N. J.

DRILLING CONTRACTORS

Diamond and Shot Core Borings

Dry Sample Borings

Grout Holes and Pressure Grouting

Foundation Testing for Bridges, Dams and other Heavy Structures

Manufacturers, also of Diamond Core Drilling Machines and complete accessory equipment, including all types of Diamond Drilling Bits. Ask for Bulletin 320.

SPRAGUE & HENWOOD, Inc.

Dept. E, Scranton 2, Penna.

▲ Mo., Lebanon—City, sanitary sewers, sewage disposal plant. $1,000,000. Haskins, Riddle & Sharp, Finance Bldg., Kansas City, Mo., consult. engrs. CD 10/14.

▲ O., Cincinnati—City, City Hall, Rapid Run Sewer Exten. No. 2, south branch, $152,000. Westwood Relief Sewer No. 3, $895,000. sewering ravine at Daly and Winton Rds, $990,000. T. J. Montgomery, city engr. CD 11/5.

▲ O., Cincinnati—City, City Hall,
Constr. No. 4, Mill Creek Sewage Works, $1,870,000.
Contr. 5, Mill Creek Sewage Works, $1,200,000.
Contr. 6, Mill Creek Sewage Works, $4,500,000. CD 7/1/43.
East Ohio Interceptor, $1,500,000.
power plant for incinerator, $165,000. CD 11/5. T. J. Montgomery, city engr.

BRIDGES

NEBRASKA—State Dpt. Roads & Irrigation, Lincoln, Cheyenne Co.—underpass and Union Pacific R.R. tracks, at Sidney. $500,000. L. N. Ress, state engr. CD 12/9/47.

▲ Tex., Corpus Christi—City, City Hall, and Nueces Co., Court House, voted bonds Mar. 17, high-level bridge across waters of Port entrance. $4,575,000. CD 8/20.

▲ Que., Verdun—City, City Hall, bridge to connect Verdun with Nuns Island $2,000,000. Henry Hadley, c/o owner, city engr.

STREETS AND ROADS

▲† FLORIDA—Bureau P. Rds., Dpt. Commerce, Park Supt., Homestead,
road through Everglades National Park, Flamingo. $1,000,000.

▲ New York—President Richmond Boro, Boro Hall, St. George, Staten Island, Seaside Blvd. imprvt. between Fort Wadsworth and Miller Field, Richmond Boro. $3,566,750. Andrews, Clark & Buckley, 305 E. 63 St., New York, Zone 21, engrs. CD 3/26/43.

NORTH CAROLINA—State Hy. & P. Wks Comn. Raleigh, Columbus Co.—Rte. 701 by-pass, at Whiteville, $218,897.

▲ O., Cleveland—Comrs. Cuyahoga Co., Court House, Pleasant Valley Road exten. in Independence to link with Alexander Rd., east of Canal Rd. in Valley View for 2-lane southerly cross-county hy., incl. grade separations at B. & O. R. R., Riverview Rd. and Canal Rd. and single bridge span over Cuyahoga River, The Ohio Canal and Canal Rd., $2,760,650, Howard, Needles, Tammen & Bergendoff, Standard Bldg., consult. engrs.;
wid'n. resurf. Prospect Rd. between Royalton and Boston Rds., Strongsville, $100,000, Albert S. Porter, Standard Bldg., county engr. CD 11/13/51.

▲ TEXAS—Texas Turnpike Auth., Room 214, First Federal Bldg., Austin, Zone 1,
Sect. 6, Dallas-Fort Worth Turnpike. Total cost $58,500,000. Mitchell & Hunt, Transit Tower, San Antonio, Zone 5, consult. engrs. CD 11/22.

▲ Tex., Corpus Christi—City, City Hall, and Nueces Co., Court House, voted bonds Mar. 17, expressway. $11,000,000.

AIRPORTS

▲ Tex., Beaumont—AIRPORT IMPRVS.—Jefferson Co., Court House, voted bonds Mar. 12, runway exten., $566,567; bldg. and paving safety zones, $75,000; instrument landing sys., $95,000; strengthening existing runways, $150,000; strengthening existing taxiways, $100,000; strengthening existing ramps, $90,000. W. O. Bower, co. engr. CD 2/9.

Tex., Lake Jackson — AIRPORT — Dow Chemical Co., Freeport, private airport, incl. 5,000 ft. runway, 80x100 ft. hangar, etc. $875,000.

AMERICANS ABROAD

▲ Peru—Govt. of Peru, Lima, Ralph M. Parsons Co., consult. engr., 617 S. Olive St., Los Angeles, Calif., will make an economic study of Marcapomacocha proj. for water supply, and irrigation, near Lima.

PUBLIC BUILDINGS

Calif., Indio—SCHOOL—Indio School District, Indio voted $500,000 bonds, schools. CD 22.

▲† D. C., Wash.—SENATE OFFICE—Office of the Capitol Architect, U. S. Capitol, Wash., D. C. senate office bldg., 2 pedestrian tunnels and one subway tunnel, $20,600,000. CD 6/30/49.

▲† D. C., Wash.—PHYSICAL EDUCATIONAL, etc.—General Services Admin. P. Bldgs. Service, General Services Bldg., Zone 25, physical educational and activity bldg., heating plant, laundry and shop, $1,600,000; girls' dormitory, at Gallaudet College, Florida Ave. and 7 St. N.E. $625,000.

▲† D. C., Wash.—SECURITY—General Services Admin., P. Bldgs. Service, General Services Bldg., security bldg. at St. Elizabeth's Hospital, Congress Heights. $7,000,000.

Md., Towson — SCHOOL — Baltimore Co. Bd. Educ., Aigburth Rd., plans by Wrenn, Lewis & Jencks, 113 W. Mulberry St., Baltimore, Zone 1, Elmwood Elementary School, Fullerton, $750,000.

▲ Mass., Quincy—SCHOOL—City, School Dpt., 70 Coddington St., plans by Childs & Smith, 20 N.

(Continued on page 98)

Now-out of Chrysler Corporation...come the most rugged trucks ever built!

Announcing new

Dodge "Job-Rated" Trucks!

The power line with full view design!

NEW! Super Power-Dome V-8 engines—169 to 202 hp.—the world's most powerful low-tonnage V-8's—and the most dependable sixes!

NEW! Full-view design with biggest wrap-around windshield of any make! Wrap-around rear window available, too! You get greater safety, easier handling!

NEW! Higher payloads, new no-clutch transmissions, power steering and braking, fuel-saving overdrive! Plus smartly-styled interiors, colors, 2-toning! Over 100 new features!

Now on display at your dependable Dodge Truck dealer's!

(Continued from page 96)

Wacker Dr., Chicago, Ill., Junior High School, Broadmeadows Area off Sea St. $1,250,000. Harry J. Korslund, 506 Washington St., consult. archt. CD 9/29.

▲ Mass., Warwick—SCHOOL—Pioneer Valley Regional School District, Supt. Schools, Denter School, Northfield, plans by The Architects Collaborative, 96 Mt. Auburn St., Cambridge, regional high school, $1,000,000. Site changed. CD 3/11, under Mass., Northfield.

▲ Mich., Milford—HIGH SCHOOL—Milford Twp. Bd. Educ., Milford, voted bonds Mar. 22, high school, Huron Valley Dist. $1,250,000. CD 3/9.

▲ Minn., St. Paul—SCHOOL—Bd. Educ., Independent Consolidated Dist. No. 2, Dr. F. M. Owens Jr., chn., voted $1,200,000 bonds Mar. 22, 2 grade schools, West St. Paul. $600,000 each. CD 2/24, under Minn., West St. Paul.

▲ Minn., St. Paul—SCHOOL—Bd. Educ., Dr. F. M. Owens Jr., clk., plans by Ellerbe & Co., E. 505 First National Bank Bldg., St. Paul, 2 grade schools, West St. Paul. $1,200,000. CD 3/28.

▲ Mont., Bozeman—HIGH SCHOOL—Gallatin County High School Dist., Bozeman, 360x580 ft. high school. $1,200,000. CD 9/14.

▲ N. Y., Flushing—HEALTH AND RECREATION—Queens College, 54-30 Kissena Blvd., Zone 6, plans by Lorimer & Rose, 254 W. 54 St., New York, Zone 19, 3 story health and recreation bldg. on campus. $2,500,000. CD 11/19/53.

▲ N. Y., New York—LIBRARY—Bd. Higher Educ., 695 Park Ave., Zone 21, plans by Lorimer & Rose, 254 W. 54 St., Zone 19, 3 story library, City College, 135 St. between Convent Ave. and St. Nicholas Terrace. $3,000,000.

▲ N. Y., New York—TECHNOLOGY—Dpt. P. Wks., Municipal Bldg., Zone 7, plans by Lorimer & Rose, 254 W. 54 St., Zone 19, Proj. HN-109, technology bldg. at City College. $6,000,000. CD 10/20/44.

▲ N. Y., New York—HOSPITAL—Dpt. P. Wks., Municipal Bldg., Zone 7, Syndenham Hospital rehabilitation. $1,400,000. John C. Carlisle, 55 Broadway, Zone 4, engr.

▲ N. Y., Salamanca—HIGH SCHOOL—Bd. Educ., Salamanca, plans by Pfohl & Stoll, consult. engr.-archt., 187 Niagara St., Buffalo, 1 and 2 story, brick, steel Salamanca Junior-Senior High School. $2,600,000. Bond election Mar. 25.

▲ N. Y., Springville—SCHOOL—Griffith Institute & Central School Bd. Educ., Springville, bond election Apr. 22, 1 story, steel, masonry, brick elementary school, Newman and North Sts., $1,425,000. Foit & Bachnagel, 232 Delaware Ave., Buffalo, archts.-consult. engrs.

▲ O., Cincinnati—MEDICAL SCHOOL, etc.—City, City Hall, medical school addn., $1,013,000; classroom and laboratory bldg. (east wing) $690,000; science bldg., $1,300,000; classroom and laboratory bldg. (north wing), $500,000. at University of Cincinnati, T. J. Montgomery, city engr. CD 11/5.

▲ Pa., Wallingford—SCHOOLS—Nether Providence Twp. School Bd., Wallingford, high school addn. $350,000; elementary school, $500,000; plans by Howell Lewis Shay & Assocs., Packard Bldg., Phila., elementary school, $500,000. CD 10/11/50.

▲ Tex., Austin — ADMINISTRATION — State Dpt. P. Health, Dr. Henry A. Holle, dir., 410 E. 5 St., plans by Page, Southerland & Page, 602 West Ave., administration bldg., north of Austin, Lamar Blvd., Guadalupe and W. 45 Sts. $3,750,000.

Tex., Hull-Daisetta—SCHOOL—Hull-Daisetta Independent School Dist., Daisetta, plans by Wyatt C. Hedrick, archt.-consult. engr., 5201 Fannin St., Houston, school. $600,000. CD 3/4.

▲† Va., Quantico—OFFICERS QUARTERS, etc.—Dpt. Navy, Naval Gun Factory, Wash., D. C., plans by Lublin, McGaughy & Assoc., 1001 Connecticut Ave. N.W., Wash., D. C., bachelor officers quarters, mess and galley, academic bldg., boiler house. $3,000,000. CD 8/6.

Wash., Ellensburg — PHYSICAL EDUCATION — Central Washington College of Educ., Ellensburg, physical education bldg. $540,000. CD 2/19/47.

Wash., Steilacoom—CHILDREN'S UNIT—State Dpt. P. Institutions, Olympia, children's unit at Western State Hospital. $500,000.

† Wash., Tacoma—HOSPITAL—Veterans Admin., Pentagon, Wash., D. C., remodeling American Lake Veterans Hospital. $503,600.

▲† Wash., Walla Walla—HOSPITAL—Veterans Admin., Pentagon, Wash., D. C., replacing barracks-type bldgs. at Veterans Hospital. $5,636,000.

Ont., Sarnia—HIGH SCHOOL—Sarnia Suburban Area High School Bd., 283 N. Christian St., plans by John B. Parkin Assocs., 717 Church St., Toronto, city rural high school, near Indian Rd. and Michigan Ave. $850,000.

▲ Ont., Toronto—JAIL—Municipality of Metropolitan Toronto, 67 Adelaide St. E., plans by Barnett & Rieder, 644 Bayview Ave., Don Jail annex, Gerrard St. E. at Simpson Ave. $1,500,000. CD 3/22.

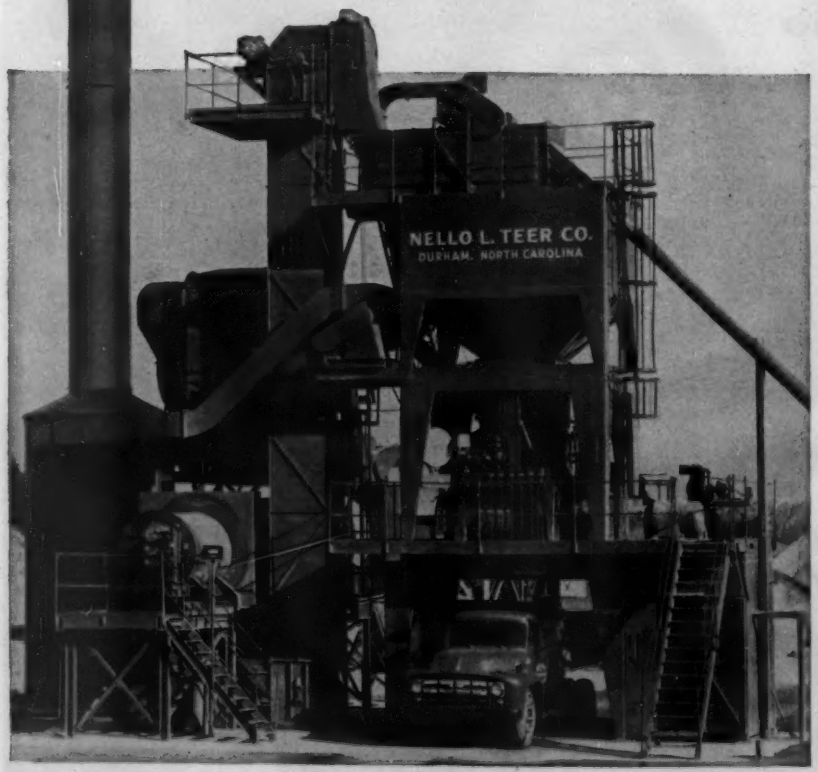
Another H&B TYPE "T"

BATCH MIX ASPHALT PLANT

● Shown here is the new H&B Type "T" batch mix asphalt plant of the Nello L. Teer Co, Contractors, of Durham, N. C. This plant has a fugitive dust collection system on the hot elevator, screen, weighbox and mixer, with its own exhauster operating entirely separately from the dryer collecting system. A properly designed duct system and individual dampers on each branch assure balanced operation. This fugitive dust collection system is optional equipment on Type "T" plants.

H&B Type "T" plants are available in four sizes, with capacities from 60 to 180 tons per hour. Special engineering service available for planning special installations when standard size plants will not meet the requirements of your job.

Write for new Bulletin T-55



HETHERINGTON & BERNER INC.

ENGINEERS . . . MANUFACTURERS

730 KENTUCKY AVENUE INDIANAPOLIS 7, INDIANA

COMMERCIAL BUILDINGS

Ariz., Phoenix—DEPARTMENT and VARIETY STORE—J. J. Newberry Stores, Washington at First St., 1 story, 45,000 sq. ft., masonry department and variety store, $540,000.

▲ Ariz., Phoenix—HOMES, APARTMENTS, etc.—Del E. Webb Constr. Co., S. 23 Ave., Phoenix, 500 homes and apartment bldgs., commercial shopping center, $10,000,000.

▲ Calif., Buena Park—DWELLINGS—Young & Loftus Constr. Co., 11725 S. Carmenita St., plans by Ed. E. Carver, 7827 E. 8 St., Downey, 125 frame, stucco dwellings, Tract 2443. $1,250,000.

Calif., East Whittier—DWELLINGS—Ryness-Smith Co., 5801 E. Randolph St., Los Angeles, plans by Ed. E. Carver, 7827 E. 8 St., Downey, 89 frame, stucco dwellings, Tract 20799. $800,000.

▲ Calif., Granada—DWELLINGS—Anchor Park, 5656 W. 3 St., Los Angeles, 168 frame stucco dwellings, Germain St. and other streets, $1,700,000.

▲ Calif., Los Angeles—DORMITORY, etc.—Occidental College, 1600 Campus Rd., plans by Chambers & Hibbard, 124 W. 4 St., 3 story, 35,000 sq. ft., rein.-con. women's dormitory $572,000; 21,382 sq. ft. dining hall addns. $474,000; 3 story 24,400 sq. ft. rein.-con. men's dormitory $405,000.

Calif., Muscoy—DWELLINGS—J. B. Constr. Co., 16021 Woodvale Rd., Encino, plans by E. J. Carver, 7827 E. 8 St., Downey, 90 frame, stucco dwellings, Tract 4417. $900,000.

Calif., Palos Verdes—DWELLINGS—R. C. Flattery, 2301 Palos Verdes Dr., plans by C. H. Lewis, 405 Via Chico St., 40 frame, stucco dwellings in Palos Verdes Estate, $500,000.

Calif., Pasadena—DWELLINGS—Lomita Square Corp., 3701 E. Foothill Blvd., 57 frame, stucco dwellings, Riviera Dr. $860,000.

▲ Calif., Van Nuys—DWELLINGS—University Estates, 144 S. La Brea St., Los Angeles, 184 frame, stucco dwellings, near Van Owen St. and Oso Ave., $1,900,000.

Ga., Atlanta—MOTEL—Joseph Benamy, 1310 Twenty-Two Marietta St., downtown motel. $750,000.

▲ Ind., Hammond—HOSPITAL—St. Margaret Hospital, Douglas St. and State Line, plans by Bachman & Bertram, 5116 Hohman Ave., hospital addn. $1,000,000.

▲ Ky., Louisville—SEMINARY—Presbyterian Seminary, 1 St. and Broadway, plans by E. L. Hutchings, Heyburn Bldg., theological seminary, on Cannon's Lane and Cherokee Park. $2,000,000.

Mo., Kansas City—APARTMENT—Malvin Kleb, 406 W. 34 St., Kansas City, Mo., plans by Morley & Geraughty, 406 W. 34 St., Kansas City, Mo., apartment. $600,000.

▲ Mo., North Kansas City—OFFICE—Consumers Cooperative Assn., 318 E. 10 St., Kansas City, Mo., plans by J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., office. $1,000,000. CD 12/27.

Mo., St. Louis—BANK—Jefferson Bank & Trust Co., 2337 Franklin Ave., Zone 3, plans by Bank Building & Equipment Corp. of America, 906 Sidney St., Zone 4, modern bank, Jefferson Ave. between Washington

Ave. and Locust St., incl. 70-car parking lot and facilities for drive-in banking. $650,000.

Mont., Billings—OFFICE—Doctors Building Co., c/o D. E. Hageman, 2304 Spruce St., plans by Cushing & Terrell, 1333 N. 27 St., 3 story bsmnt. office, Elevation Ave. and 29 St. $500,000. CD 5/17/50.

Mont., Great Falls—BANK—First Montana Corp., Central Ave. and 4th St., plans by McIver, Hess & Haugsjaa, Strain Bldg., 6 story, 100x150 ft. rein.-con., steel bank. $500,000. CD 11/17.

N. Y., Jackson Heights—APARTMENT—Danjo Realty Corp., c/o Martin N. Weston, archt., 44 Court St., Brooklyn, Zone 2, 6 story apartment, 35 St., northeast corner 90 St. $788,000.

▲ N. Y., Maybrook—HOUSES—Carnoy American Builders, 111 Tarrytown Rd., White Plains, 600 houses for employees of proposed Industrial Tract. $6,000,000.

▲ N. Y., New Windsor—SHOPPING CENTER—Syndicate, c/o T. D. Sheppard & Assocs., engrs., 504 State Hy. No. 17, Paramus, N. J., regional shopping center, 24-acre tract. $1,000,000.

N. Y., New York—OFFICE—Bankers Trust Co., 10-16 Wall St., Zone 5, plans by Shreve, Lamb & Harmon, 11 W. 44 St., Zone 36, office alterations at site $600,000.

▲ N. Y., New York—OFFICE—Grenalt Co., Inc., 855 Sixth Ave. Zone 1, plans by Henry G. Greene, 855 Sixth Ave., New York, Zone 1, office and store, 81-83 Pine St. $1,000,000.

▲ N. Y., New York—APARTMENT—TAK Realty Corp., 1160 Utica Ave., Brooklyn, plans by Sylvan Bien, 33 W. 46 St., Zone 19, 16 story apartment, 1227-31 Madison Ave. and 48 E. 89 St. $1,000,000.

▲ N. Y., Woodside—APARTMENT—Woodside Terrace, Inc., c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn, Zone 2, 6 story apartment, Woodside Ave., between 55 and 56 Sts. $1,000,000.

O., Dayton—HOTEL—Gibbons Hotel, John W. Borham, Jr., mgr., 11 S. Ludlow St., remodel, modernize hotel W. Third and Ludlow Sts. $500,000.

▲ Pa., Phila.—APARTMENT, etc.—Owner, c/o Matthew K. Stevens, 225 S. 15 St., plans by Samuel I. Oshiver, 1704 Walnut St., 26 story, 208-unit apartment, 12 story professional bldg., 9th St. and Rittenhouse Square. $7,000,000.

Pa., Phila.—CHURCH—Resurrection of Our Lord, Castor Ave. and Shelmire St., plans by Stickle & Assocs., 125 City Line, Bala Cynwyd, church. $750,000.

▲ Tenn., Nashville—STORE—Sears Roebuck & Co., 925 S. Homan St., Chicago, Ill., store. $2,500,000.

Tex., Austin—CONVENT, etc.—Sisters—Servants of the Holy Ghost of Perpetual Adoration, c/o Sister Mary Salvatora, Mount Grace Convent, 1438 E. Warne Ave., St. Louis 15, Mo., convent and chapel, etc., on 5¼ acre tract. $500,000.

▲ Tex., Bryan—CLASSROOMS, etc.—Allen Military Academy, Bryan, classrooms bldg. $575,000; administration bldg., $750,000; dormitory, $1,000,000; equipment storage or warehousing, $400,000; water storage, $75,000; sanitary-storm sewers, $100,000; open drainage, grading, paving in academy area, $100,000. CD 5/20/49.

▲ Tex., Houston—OFFICE—Greenbriar Corp., c/o Cecil V. Hagen, Gulf Bldg. Annex, 10 story bsmnt., 90,000 sq. ft. masonry office, penthouse, Greenbriar Dr. and University Blvd. $1,500,000.

▲ Tex., Houston—SHOPPING CENTER—Gulfgate Corp., c/o Theo. Berenson, Bankers Mortgage Bldg., regional shopping center, 80-acre site on North Side, to be called "Northline." $17,500,000. CD 1/22/53.

▲ Tex., Midland—DWELLINGS—Barney Grafta, 215 W. Wall St., 18 frame, masonry dwellings, $350,000; 7 roman brick dwellings, $350,000; 20 roman brick, cedar shake and stone dwellings, $600,000; 9 brick, stone dwellings, $360,000; 11 roman brick, cedar shake dwellings, $385,000; 19 stone, cedar shake dwellings, $475,000; 16 stone dwellings, $375,500, in McCall Place, northeast sect.

▲ Tex., San Antonio—SHOPPING CENTER—Northcrest Shopping Center, 301 W. Commerce St., plans by Bartlett Cocke, 3501 Broadway, shopping center, 35-acre tract off Military Dr. $3,750,000. W. E. Simpson Co., 945 Milam Bldg., consult. engr.

Tex., San Antonio—OFFICE, etc.—The Stewart Co., 1401 S. Flores St., plans by Bartlett Cocke, 3501 Broadway, office-warehouse, 10-acre tract Loop 13 and S P. RR tracks. $750,000.

▲ Wis., Kenosha — SCHOOL — Regional Diocesan High School, 2000 W. Wisconsin Ave., Milwaukee, plans by Mark F. Pfaller Assocs, 7613 W. State St., Wauwatosa, Zone 13, central Catholic high school. $2,000,000. R. J. Strass, 225 E. Michigan St., Milwaukee, Zone 2, consult. engr. CD 1/7/54.

▲ Wis., Milwaukee—OFFICE—Wisconsin Blue Cross, 826 N. Plankington Ave., Zone 3, plans by Eschweiler & Eschweiler, 720 E. Mason St., 2 or 3 story, 90x240 ft. office. $1,000,000.

▲ Alaska, Anchorage—LIBERAL ARTS COLLEGE—Alaska College, c/o Methodist Div. of National Missions, 1701 Arch St., Phila., Pa., four-year liberal arts college on 24-acre tract. $5,000,000.

▲ B. C., Vancouver—OFFICE—General Medical Bldg., Ltd., c/o 1930 Marine Bldg., plans by McCarter, Nairne & Partners, 1930 Marine Bldg., 14 story, 125x300 ft., concrete, steel office, Broadway and Willow St. $3,000,000.

▲ N. B., St. John—HOSPITAL—St. Joseph's Hospital, 116 Cobourg St., plans by Govan, Ferguson, Lindsay, Kaminker, Langley & Kenneyside, 10 Price St., Toronto, Ont., 8 story main bldg., 4 story wing, 1 story wing all with bsmnts., concrete, steel, brick hospital extensions, $3,000,000. CD 12/23.

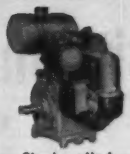
(Continued on page 101)

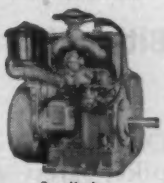
POWER to MIX Concrete and DELIVER it...BOTH UNITS ARE WISCONSIN-POWERED

Working here are two fine units powered by Wisconsin Heavy-Duty Air-Cooled Engines . . . the versatile "Scoot-Crete" made by Getman Brothers, Manufacturing Div., South Haven, Mich., and the Kwik-Mix Dandy, built by Kwik-Mix Co., Koehring subsidiary, Port Washington, Wis. Both of these units have the inbuilt stamina and Lugging Power that are Wisconsin Engine characteristics . . . insured by such features as:

Heavy-duty engineered design and construction in all details; self-cleaning, file-hard tapered roller bearings at BOTH ends of the crankshaft; an easily accessible rotary type, high tension OUTSIDE Magneto, equipped with Impulse Coupling for quick starts in any weather, at low cranking speeds; pump circulated splash lubrication on smaller models and geared oil pump delivering individual oil stream to each rod on multi-cylinder models, *plus* efficient AIR-COOLING at temperatures from sub-zero to 140° F.

All this adds up to efficient Power Performance, Long Engine Life and Low-Cost Maintenance . . . reasons why *you* can't do better than to specify "Wisconsin Power" for *your* equipment.


Single-cylinder 3 to 9 hp. models.


2-cylinder 7 to 15 hp. models.

V-type 4-cylinder 15 to 36 hp. models.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46, WISCONSIN

A 8362-½LA

Greater Value Per Dollar With WARREN-KNIGHT TRANSITS & LEVELS

29 Special and exclusive features of design and construction result in assured accuracy—ease and convenience in handling — lower maintenance costs — longer instrument life — time and money saved in use. All these, plus — a lower price and direct shipment from the Factory assures— THE GREATEST VALUE FOR DOLLAR OF INVESTMENT

Send for FREE Catalog NR-54

WARREN-KNIGHT
136 NORTH 12TH STREET PHILADELPHIA 7, PA.

GUNITE
PNEUMATICALLY PLACED CONCRETE
dense—durable—high strength

for — Swimming Pools
Fireproofing Structural Steel
Lining Steel Stacks & Bunkers
Repairing Docks, Dams & Bridges
Reservoirs
Insulating Concretes
Water Main Lining
Thin Walls
Sewer Repairs
Lining Rock Tunnels
Pile Protection
Prestressed Tanks
Stucco Coatings
Pressure Grouting

We are Gunite contractors and engineers of long, extensive experience covering many hundreds of jobs. Get in touch with us for complete engineering data and estimates on your problem.

GUNITE CONSTRUCTION CORPORATION
420 LEXINGTON AVE., NEW YORK 17, N. Y.
MURRAY HILL 3-7699

THIS STRETCH of 9-foot wide Penetration Macadam shoulder will be given a Double Surface Treatment.

Bitumuls 3" Penetration Macadam for Heavy Duty Shoulders on West Virginia Turnpike

Bitumuls and a Specially-Built Compactor Team Up to Provide Maximum Stability

On a heavily traveled 30-mile section of the West Virginia Turnpike, safety and utility demanded the addition of a nine-foot shoulder. To provide a pavement-extension of maximum stability, Penetration Macadam with emulsified asphalt was specified.

Special Compactor

A special "articulated" compactor, designed for this particular job, was made up in two-foot sections to provide adequate flexibility for full-width compaction without rideover. This compactor gives maximum void filling, but Bitumuls easily penetrates down through the stone forming thin asphalt films that allow fractional contact of the graded stone thus assuring maximum stability.

Methods of Construction

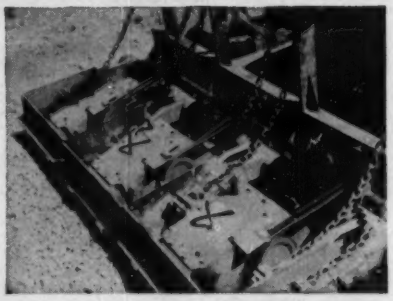
Base stone 2½" to 1" in size was placed at 210 lbs per sq. yd., rolled lightly, then choked with ½" to No. 8 chips, using the special compactor.

Bitumuls RS-1 was then applied at the rate of 0.25 gals/sq. yd., followed by a cover of ½" to No. 8 stone chips at 40 to 50 lbs per sq. yd. This cover aggregate was rolled with an 8-ton tandem, and a second application of Bitumuls RS-1 applied at 0.8 gals per sq. yd. Cover aggregate was again spread at 18 lbs per sq. yd.

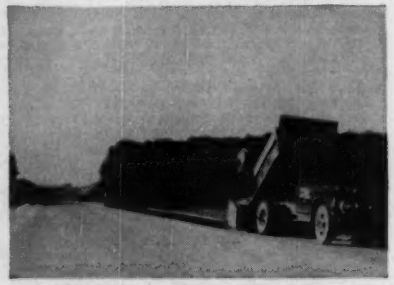
The surface was then given a Seal Coat of 0.5 gals per sq. yd. of Bitumuls RS-2 followed by imported limestone chips at 15 lbs per sq. yd. The final step in sealing the shoulders was a second Seal Coat of 0.25 gals per sq. yd. of Bitumuls RS-2, with the final cover of ⅜" to No. 10 chips at 10 lbs per sq. yd. This Seal Coat was then given a final rolling.

Bitumuls Field Engineers from our office nearest you will be happy to supply specifications on this or other types of paving.

Illustrated booklets on *all* types of Bitumuls construction and maintenance work are also available.



CLOSE-UP of the specially-designed "articulated" compactor showing the individual 2-foot sections.



SURFACING AND SEALING operations, Distributor applying Bitumuls (center) is followed closely by cover-aggregate truck. An 8-ton tandem was used to roll the cover aggregate.

AMERICAN Bitumuls & Asphalt COMPANY

200 BUSH STREET • SAN FRANCISCO 4, CALIFORNIA

E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Mobile, Ala. Cincinnati 38, Ohio Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La. St. Louis 17, Mo. Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore. Washington 5, D. C. San Juan 23, P. R.

(Continued from page 99)

Ont., Toronto—APARTMENT PROJECT—Canadian Legion of Toronto Homes District, 22 College St., 6 buildings 2 story each low rental apartment project, Finch Ave. and Bathurst St. for elderly veterans, $500,000.

Ont., Toronto—APARTMENTS—Silverton Constr. Co. Ltd., 257 Yonge Blvd., plans by Mendelow & Kenywan, 1398 Eglinton Ave. W., 4 story, bsmnt., 95x194 ft., 48-suite, steel, brick apartment, 40 Glen Rd. $350,000; 10 story, 63-suite, rein.-con., steel brick apartment, Mallory Gardens near Oriole Parkway, $504,000.

Que., Chicoutimi—CHURCH—La Fabrique de la Paroissee du Christ-Roi, Chicoutimi, plans by Lamontagne & Gravel, 365 E. Racine St., church. $500,000. William Gravel, 31 West Racine St., consult. engr. CD 3/25.

▲ Que., Quebec City—STUDENTS RESIDENCE—Laval University, Quebec City, plans by E. Fiset, 604 St. John St., students residence at Ste. Foye. $1,000,000. CD 1/2/48.

INDUSTRIAL BUILDINGS

Calif., Whittier—FACTORY, etc.—Ekco Products Co., 802 W. Whittier Blvd., factory and office, $500,000. Quinton Engineers Ltd., 816 W. 5 St., Los Angeles, consult. engrs.

Conn., Glastonbury—WAREHOUSE EXPANSION—Mutual Benefit Life Insurance Co. of New Jersey, c/o The Consolidated Cigar Corp., lessee, 109 Commerce St., Hartford, plans by Ebbets, Frid & Prentice, 862 Asylum Ave., Hartford, 104,000 sq. ft. warehouse expansion addn. $850,000.

Ill., Decatur—PARKING—Park & Shop Corp., c/o Engineering Service Corp., engrs. Decatur Club Bldg., 3 floor parking bldg. $700,000.

▲ Ky., Russellville—PLANT—Civil Development Corp., Russellville, plans by Eschweiler & Eschweiler, 720 E. Mason St., Milwaukee, Wis., 100,000 sq. ft., 1 story brick, tile mfg. plant for Rockwell Mfg. Co. $1,000,000.

▲ Mass., Gloucester—PLANT—Quincy Market & Cold Storage Warehouse Co., 178 Atlantic Ave., fish freezing plant Pew Court and Rowe Square, $1,000,000. CD 2/14.

▲ Neb., Kimball—PLANT—Kimball Gas Products Co., Odessa, Tex., gasoline plant. $1,000,000.

N. Y., Buffalo—WAREHOUSE—U. S. Rubber Co., 1230 Avenue of Americas, New York, Zone 20, 1 story approx. 80,000 sq. ft., steel, brick, tire and rubber footwear warehouse. $700,000.

▲ N. Y., Maybrook—INDUSTRIAL TERMINAL—Syndicate, c/o Thomas D. Sheppard & Assocs., engrs., 504 State Hy. 17, Paramus, N. J., industrial terminal for 5 major industries, 650-acre tract. $60,000,000.

▲ Tex., Bellaire-Houston — PARKING GARAGES — Frank W. Sharp, 1120 W. 43 St., Houston, plans by MacKie & Kamrath, 2713 Ferndale St., Houston, multi-story automatic parking garages, No. 1, $750,000; No. 2, $650,000; No. 3, $800,000, in "Sharpstown's" Business Dist. CD 3/21.

▲ Tex., Houston—PLANT—United States Gypsum Co., 300 W. Adams St., Chicago, Ill., paper mfg. plant. $15,000,000-$20,000,000; initial warehousing, $400,000, on Ship Channel. Johnson, Johnson & McKay, 502 Scanlan Bldg., consult. engrs.

▲ Wash., Seattle—PLANT, etc.—Carnation Co., 408 5 Ave. N., 1 and 2 story, 201x291 ft., steel, rein.-con. dairy plant with 128x210 ft. garage on piling fdn. $1,750,000. S. B. Barnes, 2236 Beverly Blvd., Los Angeles, Calif., consult. engr. CD 12/20.

▲ Alaska, Juneau—PLANT—Pacific Northern Timber Co., c/o Georgia-Pacific Plywood Co., American Bank Bldg., Portland, Ore., sawmill and plywood plant. $2,500,000.

▲ Ont., Napanee—PLANT—United Cement & Mining Co., c/o L. E. Merriefield, 46 Sherwood Ave., Toronto, cement plant using "dry" system on 400-acre site near here. $4,000,000.

UNCLASSIFIED

† Massachusetts—AAA FACILITIES—U. S. Eng., 857 Commonwealth Ave., Boston, AAA facilities, Boston area, Nahant, Hog Island, Squantum, Blue Hills, Needham, Lincoln and Burlington, $900,000. Harry Gulesian, 131 State St., Boston, consult. engr. CD 3/4.

Mich., Jackson—PARKING—City, City Comn., off street parking facilities, downtown sections, $550,000.

Missouri—RURAL DISTRIBUTION LINES—Central Missouri Electric Co-operative, Sedalia, 42 mi. rural distr. lins, 14.5 mi. 69 KV transmission line, substation, facilities, sys. imprvs., Pettis Co. $750,000.

Texas — RURAL DISTRIBUTION LINES — Tri-County Electric Co-operative, Azle, lines, sys. imprvs., Azle. $615,000. CD 4/15/47.

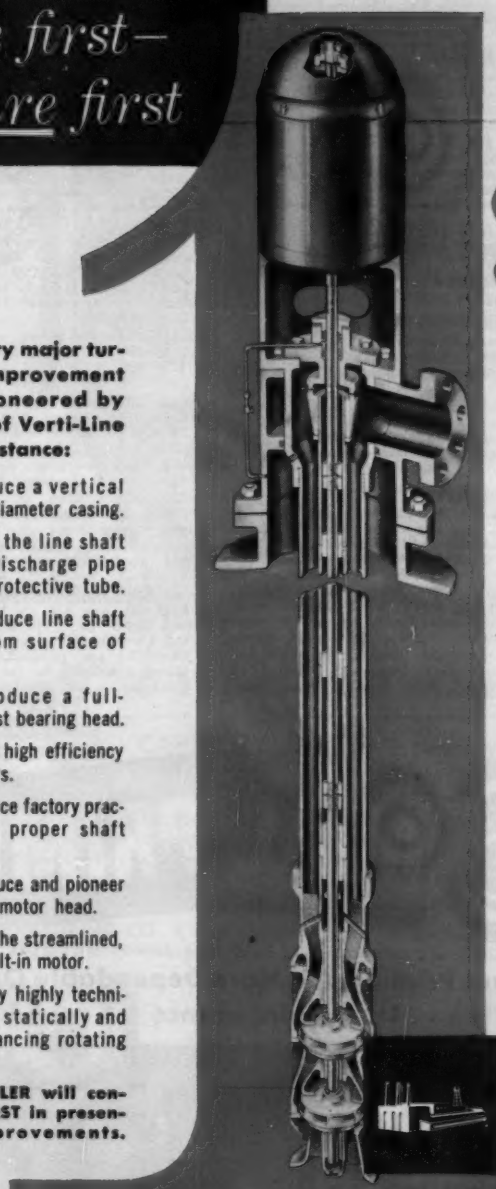
† Tex., Port Isabel—RADAR STATION—U. S. Eng., Santa Fe Bldg., Galveston, radar station at Laguna Madre sub-airbase, near Port Isabel. $500,000.

▲† Va., Norfolk—ELECTRIC DISTR. SYS.—Dpt. Navy, P. Wks. Officer, Naval Base, plans by Hayes, Seay, Mattern & Mattern, 163 W. Olney Rd., electric distr. sys., Sewells Point Area. $1,500,000.

▲ N. S. Halifax—DOCKS, etc.—Imperial Oil Ltd., 56 Church St., Toronto, Ont., new docks and improved unloading facilities in Halifax Harbour, incl. 2 concrete docks, near Pier No. 4, and crude oil storage tanks, $2,000,000. G. R. McMillin, supt., c/o owner. supt.

Verti-Line PUMPS were first— are first

1st.



Virtually every major turbine pump improvement has been pioneered by the makers of Verti-Line Pumps. For instance:

first to produce a vertical pump for small diameter casing.

first to place the line shaft inside of the discharge pipe enclosed in a protective tube.

first to introduce line shaft lubrication from surface of ground.

first to introduce a full-floating ball thrust bearing head.

first to design high efficiency enclosed impellers.

first to introduce factory practices to insure proper shaft alignment.

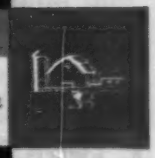
first to introduce and pioneer the hollow-shaft motor head.

first to adopt the streamlined, weatherproof, built-in motor.

first to employ highly technical methods for statically and dynamically balancing rotating parts.

LAYNE & BOWLER will continue to be FIRST in presentation of improvements.

in all industry



on the farm

for the city

More than 100,000 satisfied vertical pump users agree there's no pump like Verti-Line for low first cost, economical operation, and negligible maintenance. Whatever your vertical pump needs may be, it will pay you to investigate Verti-Line before you buy.

Send for your free copy of our new booklet "Pumps For Sale." Ask for Bulletin E-45

Verti-Line Pumps are the exclusive products of

LAYNE & BOWLER PUMP COMPANY

general offices and main plant

2943 VAIL AVENUE • LOS ANGELES 22, CALIFORNIA

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Anderson Fairoaks Constr. Co., 145 S. Marshall St., Hartford, Conn., CA, $688,300. Contract 283, southwest transmission main, Section 1, from filtration plant to Berkshire Rd., etc., West Hartford, HARTFORD, CONN. Bd. Contract & Supply, Metropolitan Dist., 115 Broad St., Hartford, Conn. Bids Mar. 10, awarded Mar. 24. CD 3/15, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

O. D. Purrington Co., Inc., 17 Westminster St., Providence, R. I. CA $619,000. Junior HIGH SCHOOL, off Mayflower Ave., MIDDLEBORO, MASS. Town, School Bldg. Comn., Middleboro, Mass. CD 4/1, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
April 26 New Jersey
STREETS AND ROADS
April 19 Maryland April 26 New Jersey

† **Del., Dover**—FIRE STATION—BA 5/10—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., fire station, Dover Air Force Base, ENG-36-109-55-58. $500,000. Whiteside, Foster, Damon & Doane, Penna Bldg., Wilmington, engrs. CD 11/6/53.

BIDS ASKED—BUILDINGS

Del., Middletown—SCHOOL—BA 4/20—William Heyl Thompson, archt., 1717 Sansom St., Phila., Pa., school addn. for St. Andrew's School, Middletown, Del. $900,000. Lamber McGee & Costello, Inc., 1629 Chestnut St., Phila., Pa., engr. CD 10/13.

▲ **N. J., Cedar Grove**—GERIATRICS—BA 4/20—Bd. Freeholders, Essex Co., Hall of Records, Newark, 500-bed geriatrics bldg., Essex County Hospital, $2,000,000. Epple & Seaman, 901 Broad St., Newark, archts.

▲ **D. C., Wash.**—SEMINARY WINGS—BA 4/24—Immaculata Seminary, 4344 Wisconsin Ave. N.W., 3 wings to present structure, $1,400,000. Plans deposit $100. Murphy & Locraft, 1518 P St. N.W., Wash. D. C., archts. CD 2/18.

N. J., Trenton—SCHOOL—BA 4/27—Hamilton Twp. Bd. Educ., 2069 Greenwood Ave., Steinart Elementary School. $600,000. Hankin, Stull & Backus, 495 W. Hanover St., archts. CD 10/11.

▲ **Pa., New Kensington**—SCHOOL—BA 5/4—School Bldg. Auth. of New Kensington, New Kensington, 1 and 2 story, steel high school, Stevenson Blvd. $2,275,000, Hunter Caldwell & Campbell, Altoona, archts. H. L. Schwartz, Alter Bldg., New Kensington, assoc. archt. CD 5/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Brown Boveri Corp.**, 19 Rector St., New York 7, N. Y., CA $1,541,480, furnishing, del. 86,000 KVA single phase power transformers, Spec. No. PA-4-14002, St. Lawrence Contr. No. P7, NEW YORK. Power Authority of State of New York, 270 Broadway, New York 27, N. Y. Bids Mar. 22. CD 3/24, under LB.

Vicbar Constr. Corp., 17 Neptune Ave., Brooklyn, N. Y. Owner Builds. $615,000. 41 HOUSES, 1140-71 E. 102 St. and 1141-71 E. 101 St., BROOKLYN, N. Y. Morris Rothstein & Son, 186 Joralemon St., Brooklyn 2, N. Y. archts.

Associated Terrace Homes, c/o Erwin Gerberg, archt., 1180 Raymond Blvd., Newark, N. J. Owner Builds. $700,000. 41 HOUSES, Avenue W between E. Third and E. 4th Sts., BROOKLYN, N. Y.

Thomas Cafiero, c/o Maurice A. Capobianco, archt., 30 S. Broadway, Yonkers, N. Y. Owner Builds. $750,000. 25 HOUSES, Ardsley and Highland Rds., SCARSDALE, N. Y.

Morris Manor Homes, c/o Arthur E. Williamson & Co., 484 Route 17, Paramus, N. J., Owner Builds, $900,000. 100 HOUSES, on tract on Route 70, near Garden State Parkway, LAKEHURST, N. J.

Colonia Terrace Homes, c/o Erwin Gerber, archt., 1180 Raymond Blvd., Newark, N. J., Owner Builds $700,000, 48 HOUSES on tract at McFarlane and North Hills Roads, Woodbridge, N. J.

Prince Bros., 4517 Park Ave., Baltimore 15, Md., LB $422,900. base bid.

Colwill Constr. Co., 2114 Maryland Ave., Baltimore 18, Md. LB $450,300. alternate, concrete, steel, masonry TRAINING and WORK CENTER, BALTIMORE, MD. Maryland Workshop for the Blind, 601 N. Fulton Ave., Baltimore 17, Md. Bids Mar. 31. CD 3/15.

▲ **Jack Meyerhoff & Sons Co.**, 14 W. Saratoga St., Baltimore 1, Md., Separate Contracts. Est. $1,378,000. two hundred and thirteen 2 story brick HOMES Bridgewood Dr., Stratton Way, Westham Way, near BALTIMORE, MD.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
April 20 Virginia
STREETS AND ROADS
April 20 Virginia

Va., Roanoke—BA 4/25—City, 20 E. Salem Ave., water filtration plant, Carvin's Cove, $750,000, Alvord Burdick & Howson, 20 N. Wacker Dr., Chicago, Ill., engrs. CD 9/6/45.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Craig-Roberson Constr. Co.**, 1610 Westminster Dr., Columbia, S. C., LB $538,857, double maintenance hangar, Myrtle Beach Air Force Base, No. 38-081-55-49. MYRTLE BEACH, S. C. U. S. Eng., Custom House, Charleston, S. C. Bids Mar. 29. CD 3/7.

▲ **Bernard & Byrd, Inc.**, P. O. 1688, Mobile, Ala., CA, $1,469,099. Proj. No. 771-F, Conception Street Interceptor Sewers, etc., MOBILE, ALA. Bd. Water & Sewer Comrs., City Hall, Mobile, Ala. Bids Mar. 24. CD 3/2.

† **R. B. Tyler Co.**, 1446 Levering St., Louisville, Ky. LB $789,690, est. $915,145. runway, taxiway exten. Fort Campbell Air Force Base, ENG.-40-058-55-13, FORT CAMPBELL, Ky. U. S. Eng., P. O. Box 1070, 303 Federal Office Bldg., 7 Ave. and Broadway, Nashville, Tenn. Bids Mar. 30. CD 3/9.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
May 10 Ohio

▲ **INDIANA**—BA 7/27—Indiana Toll Road Comm., A. J. Wedeking, exec. dir., 309 W. Washington St., Indianapolis, Zone 4,
toll plazas and lighting near South Bend, La Porte, Michigan City, Valparaiso, Gary, Hammond and interchange plazas at State Rd. 39 and U.S. Rd. 421 in

the La Porte Area, $1,650,000. Chas. W. Cole & Son, 220 W. La Salle St., South Bend, conult. engrs. CD 2/10/54.

BIDS ASKED—BUILDINGS

▲ **Mich., Berkley**—SCHOOL—BA 4/26—City, Bd. Educ., E. G. Carlson, secy., 2325 Catalpa Dr., Junior High, School, Community Field, Mich. 54-C-414-AA, $1,050,000. Plans deposit $50, refundable. Earl G. Meyers, 806 Farwell Bldg., Detroit, archt. CD 1/19.

▲ **Ill., Springfield**—APARTMENT—Bids Asked—Franklin Life Insurance Co., 800 S. 6 St., 14 story, 98-unit air-conditioned apartment $1,500,000. Shaw, Metz & Dolio, 208 S. La Salle St., Chicago, archts.

SOON LETS CONTRACT—BUILDINGS

▲ **Ill., Lisle**—RESEARCH UNIT, etc.—Morton Arboretum, Route 53, Lisle, soon lets contract research unit, greenhouses, paving and service bldg. $1,000,000. Holabird Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, archts.- CD 10/7.

Wis., Milwaukee—SCHOOL—St. Anne's Catholic Congregation, 2474 N. 37 St., soon let contract 2 story, bsmnt., 87x205 ft., parochial school $750,000. Grellinger & Rose, 757 N. Broadway, archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,

Ill.—Chism & Miller, Inc., P.O. Box 1338, Springfield, Ill., LB, $121,794, rein.-con. floor for bridge on Ill. 3 and 157, St. Clair Co.; LB $94,253, grade separation carrying U.S. 66 over C.C.L. & St. Louis R.R., Madison Co.;

Ill.—Great Lakes Dredge & Dock Co., 122 S. Michigan Ave., Chicago 3, Ill., LB, $526,886, substructure for dual bridges over U.S. 66 near Des Plaines River, Will Co.;

Ill.—H. H. Hall Constr. Co., 211 S. 15 St., East St. Louis, Ill., LB, $88,711, structural steel for 1 bridge on Ill. 3 and 157, St. Clair Co.;

Ill.—Leininger Constr. Co., 30 N. La Salle St., Chicago, Ill., LB, $714,528, c. conc. 0.77 mi., two c. conc. paved interchange ramps, 2 parallel grade separations structures on U.S. 66, Will Co.;

Ill.—McDougal-Hartmann Co., 1500 N. Adams St., Peoria, Ill., LB, $146,891 steel beam bridge over La Moine River, gravel or crushed stone surf. course 0.52 mi. F.A.S. 583, Schuyler Co.;

Ill.—H. H. Mass Constr. Co., Huntley Rd., Algonquin, Ill., LB, $284,182, portion of sub-structures for bridge over Vermilion River on U.S. 150, Vermilion Co.;

Ill.—Milwaukee Bridge Co., 3282 N. 35 St., Milwaukee 45, Wis. LB, $87,034. furnishing structural steel and metal handrail for grade separation on U.S. 51, Winnebago Co.;

Ill.—E. T. Simonds Constr. Co., & J. D. Barter Constr. Co., Box 356, Carbondale, Ill., LB, $158,844, 1 steel beam bridge and gravel or crushed stone surf. course 0.41 mi. F.A.S. 893, Gallatin Co.;

Ill.—W. K. Slagle Co., Peoria, Ill., LB, $77,757, 1 concrete deck girder bridge and bit. surf. approaches Ill. 87, Woodford Co.;

Ill.—Carl E. Soderquist Constr. Co., 1303 S. 3 St., St. Charles, Ill., LB, $114,116, 2 parallel I-beam bridges U.S. 66 over Mazon River, Grundy Co.;

Ill.—E. H. Swenson & Son, 14 Henderson Ave., Joliet, Ill., LB, $196,263, 1 I-beam bridge over Kankakee River on U.S. 66, Will Co.;

Ill.—Vierling Steel Works, 53 W. Jackson St., Chicago, Ill., LB, $142,796. furnishing structural steel and metal handrail for bridge over Kankakee River, U.S. 66, Will Co.;

Ill.—Walker Constr. Co., 421 S. 21 St., Mattoon, Ill., LB, $84,365, steel beam bridge and gravel or crushed stone surf. 0.36 mi. F.A.S. 694, Clark Co. Bids Apr. 1. CD 3/22.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,

Ill.—Bituminous Fuel & Oil Co., 304 Illinois Ave., East St. Louis, Ill., LB, $81,364. bit. surf. tr. 5.04 mi. F.A.S. 745, Jersey Co.; LB $194,867, intermittent bit. surf. 21.19 mi. Ill. 96, Pike and Calhoun Counties;

Ill.—R. A. Cullinan & Son, Tremont, Ill., LB, $85,217, bit. surf. 2.62 mi. F.A.S. 573, Menard Co.; LB $85,318, bit surf. 3.05 mi. F.A.S. 543, De Witt Co.;

Ill.—Johnston Roadbuilders, Inc., 1 S. Eastern Ave., Joliet, Ill., LB, $75,165, bit. resurf. patching 5.79 mi. U.S. 6, 30 and 52, Will Co.; LB $108,387, bit. resurf. 3.88 mi. Alt. U.S. 66, Will Co.;

Ill.—McCalman Constr. Co., 619 Section St., Danville, Ill., LB, $379,829. c. conc. 4.27 mi. F.A.S. 513, Vermilion Co.; LB $572,240, c. conc. 1.22 mi. Ill. 1 (Gilbert St.) Danville, Vermilion Co.;

Ill.—O'Connor Constr. Co., 320 Reisch Bldg., Springfield, Ill., LB, $1,629,945. c. conc. 10.94 mi. U.S. 40, Clark Co.; LB $1,301,190. c. conc. addnl. 2 lanes 3.89 mi. U.S. 66, Madison Co.;

Ill.—J. A. Ross & Co., 4807 Fullerton Ave., Chicago 39, Ill., LB, $116,813, bit. resurf. 2.5 mi. Ill. 64 (North Ave., Oak Park and Chicago, Cook Co.; LB $234,107, bit. resurf. 3.51 mi. Ill. 50 (Cicero Ave.) Chicago, Cook Co.;

Ill.—Triangle Constr. Co., 480 N. Evergreen Ave., Kankakee, Ill., LB, $669,650, c. conc. base course wid'n., bit. surf. 2.99 mi. U.S. 51, c. conc. base course 2.61 mi., c. conc. base course wid'n. 1.94 mi., bit. resurf. 4.54 mi. Ill. 37, Pulaski Co.; LB $199,965. bit. surf. 2.86 mi. FAS 917, Jackson Co.;

Ill.—Robt. R. Anderson Co., 4550 W. Patterson Ave., Chicago 41, Ill., LB, $1,519,687, c. conc. dual lane paving 0.5 mi. F. A. 131 (Congress St. Expressway), Chicago, Cook Co.;

Ill.—Burlington Roadbuilders, Inc., P.O. Box 288, Carthage, Ill., LB, $103,514 bit. surf. 5.02 mi. F.A.S. 405 Warren Co.;

Ill.—Chas. Ind Co., Point Ave. R.R. 1, Rockford, Ill., LB, $221,138. c. conc. 1.38 mi. shoulders and ditches 6.27 mi. Alt. U. S. 30, Ogle Co.;

When you want a

CONCRETE BUCKET

● **YOU WANT** easy operating, (patented) Gar-Bro double clamshell gates—they are non-jamming!

● **YOU WANT** either lever or air operated gates which are self-closing and safe!

● **YOU WANT** heavy duty structural steel bail with extra strength for complete safety!

● **YOU WANT** large gate opening and Gar-Bro's venturi type bucket design for fast discharge.

● **YOU WANT** center vertical discharge to prevent segregation of high specification concrete.

● **YOU WANT** Gar-Bro (patented) accordion hopper to direct pour into narrow forms and to prevent segregation and spillage.

5 types • 29 models

CAPACITY | ½ to 8 cubic yards

CONTRACTORS PREFER Gar-Bro Concrete Buckets because they have so many extra advantages and plus values which pay off on concrete handling jobs.

With all the types, models and capacities of Gar-Bro Buckets, your Gar-Bro dealer can match the capacity of your mixers and answer the dimensional problems of your construction project. He can show you how to save money on concrete placing jobs. See him, consult with him about your next job.

GAR-BRO MANUFACTURING CO. • Los Angeles, Calif. • Peoria, Illinois
General Offices: 2415 East Washington Blvd., Los Angeles 21, California

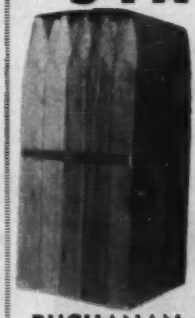
GAR-BRO

Ask your dealer for the GAR-BRO Manual . .

the world's most complete line of

Concrete Handling Equipment

STAKES



HIGH GRADE HARDWOOD

Stained Yellow Bound with Steel Strapping

		In 1000 Per lots 100	Per 100
1¾"x1¾"–12"		$7.85	$7.15
	–15"	9.85	8.95
	–18"	11.50	10.50
	–24"	16.00	14.50
	–36"	24.00	22.50
¾"x1¾"–12"		6.15	5.60
	–15"	6.60	6.00
	–18"	7.50	6.50
	–24"	11.00	10.00
	–36"	16.00	14.00

Prices net F.O.B. Cumberland, Md.

BUCHANAN LUMBER CO.
CUMBERLAND, MD.

CORE DRILLING

SERVICE AND SUPPLIES

TEST BORINGS FOR FOUNDATIONS

SOIL SAMPLING

GROUT HOLE DRILLING

A COMPLETE LINE OF DIAMOND CORE DRILLS, OPERATING EQUIPMENT AND DIAMOND BITS. SEND FOR BULLETIN 86 AND CATALOG 200.

E. J. **Longyear** CO.

MINNEAPOLIS
NEW YORK CITY SALT LAKE CITY

Ill.—**Champaign Asphalt Co.**, 310 E. Bradley Ave., Champaign, Ill., LB, $203,529, c. conc. base course widn., bit. resurf. 4.09 mi. F.A.S. 529 Champaign Co.;

Ill.—**Coggeshall Constr. Co.**, Clayton, Ill., LB, $88,992. c. conc paving patching 4.3 mi. Ill. 61 and 102, Adama and Hancock Counties;

Ill.—**J. M. Corbett & Co.**, 2501 Salt St. Chicago 8, Ill., LB, $1,731,080. dual lane c. conc. paving 0.58 mi. F.A. 131 (Congress St. Expressway) Chicago, Cook Co.;

Ill.—**Gund Graham Co., State Bank Bldg., Freeport, Ill.**, LB, $116,593, bit. resurf. 1.13 mi. F.A.S. 62 (Globe Ave.) Freeport, Stephenson Co.;

Ill.—**Huchkoba & Sons Constr Co.**, Mattoon, Ill., LB, $90,730, c. conc. base course 2 mi. F.A.S. 524, Coles Co.;

Ill.—**McMahan Constr. Co.**, Lucas and Wentzel Sts., Rochester, Ill., LB, $589,032, c. conc. base course 2.09 mi. c. conc. base course wid'n. 9.61 mi. Ill. 1, Crawford Co.;

Ill.—**E. A. Meyer Constr. Co.**, 1539 Morrow Ave., North Chicago, Ill., LB, $174,088, c. conc. 0.44 mi F.A. 42, Lake Co.;

Ill.—**Mitchell Constr. Co.**, 216 E. Madison St., Herrin, Ill., LB, $89,654. bit. surf. 1.44 mi. F.A.S. 861, Randolph Co.;

Ill.—**Rock Road Constr. Co.**, 5915 Rodgers Ave., Chicago 30, Ill., LB, $95,131, bit. resurf. 1.42 mi. Ill. 4 and 18 (Ogden Ave.) Chicago, Cook Co.;

Ill.—**Shaw-Campbell**, 1800 N. 22 St., Decatur, Ill., LB, $73,617. bit. surf. 3.84 mi. F.A.S. 653 and 654, Shelby Co.;

Ill.—**Skokie Valley Asphalt Co.**; 1228 Harding Ave., Des Plaines, Ill., LB, $338,047, bit. resurf. 8.58 mi. Ill. 131, Lake Co.;

Ill.—**Suburban Oil Co.**, 7340 W. 15 St., Forest Park, Ill., LB, $129,759, intermittent bit, resurf., patching 5.08 mi. Ill. 31 and 47, McHenry and Kane Counties;

Ill.—**Union Contr. & Eng. Co.**, 2035 W. 43 St. Chicago, Ill., LB, $158,940, bit, resurf. 2.88 mi. Ill. 50 and 57 (Cicero Ave.) Chicago, Cook Co.;

Ill.—**Valley Eng. Co.**, Colson Bldg., St. Charles, Ill., LB. $79,934, grav. or crushed rock base 3.89 mi. F.A.S. 110, Kane Co. Bids Apr. 1. CD 3/22.

Victory Constr. Co., 2333 Brentwood Blvd., Brentwood 17, Mo., LB, $700,000, Divs. I, J. K and L, intercepting sewers and 3 pumping stations, DECATUR, ILL. Decatur Sanitary Dist., Citizens Bldg., Decatur, Ill. Bids Mar. 28. CD 3/16.

▲ **E. H. Marhoefer Jr., Co.**, 505 N. La Salle St., Chicago 10, Ill., CA $2,500,000, mausoleum, HILLSIDE, ILL. Quen of Heaven Catholic Cemetery Assoc. 1400 S. Wolf Rd., Hillside, Ill. Bids Mar. 25, awarded Mar. 30. CD 3/3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **F & Y Building Services, Inc.**, 319 E. Town St., Columbus, O. CA Est. $2,000,000. 1 story, 400,000 sq. ft., brick, masonry WAREHOUSE, TERMINAL, COLUMBUS, O. Chesapeake Storage Co., 347-391 W. Mound St., Columbus, O.

Archer Constr. Co., 4069 Archer Ave., Chicago, Ill., Own Forces, $640,000. 32 HOMES near Midway Airport, CHICAGO, ILL. Floyd Evans, 8317 S. Prairie St., Chicago, Ill., archt.

▲ **Sumner Sollitt Co.**, 307 N. Michigan Ave., Chicago, Ill., CA $2,000,000, 25 story, 88-unit APARTMENT, 247 E. Chestnut St., CHICAGO, ILL. Geo. S. Lurie Realty Co., 120 S. La Salle St., Chicago, Ill. A. Epstein & Sons Co., 2011 Pershing Rd., Chicago 9, Ill., archt. Awarded Mar. 23.

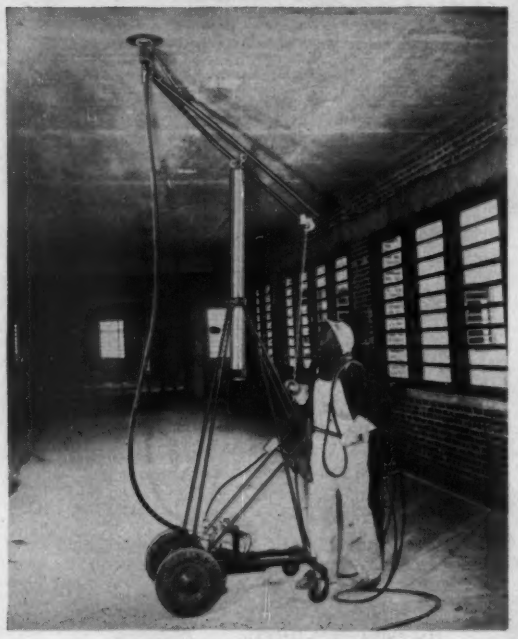
Arthur Levine, 123 Brook St., Elgin, Ill. Own Forces $600,000, 30 HOMES, ELGIN, ILL.

E. W. Sproul Constr. Co., general contract 173 W. Madison St., Chicago 2, Ill., LB $492,332, HIGH SCHOOL, ITASCA, ILL. School District No. 108, 411 N. Maple St., Itasca, Ill. Bids Mar. 28. CD 3/22.

Village Builders, 733 Elm St., Winnetka, Ill., Own Forces, $700,000, 35 HOMES in Liberty along Stewart, Rockland, Austin and Garfield Sts., LIBERTYVILLE, ILL.

Darin & Armstrong, Inc., 2041 Fenkell St., Detroit, Mich. CA $821,000. 1 story, 160x180 ft. Plymouth body PLANT, incl. baler pit, Mack and Connor Sts., DETROIT, MICH. Chrysler Corp., 341 Massachusetts St., Detroit 3, Mich. CD 3/15.

RUBBING CEILINGS?



Do it *with a* GIRAFFE

- **FASTER AND EASIER: One man will average almost 4000 sq. ft. per day. Does not need scaffolding.**
- **CHEAPER AND BETTER: Money saved on finishing will help pay for grinding.**
- **DEPENDABLE: Individual GIRAFFES have worked more than 1,000,000 square feet without major overhaul.**

GIRAFFE

CONCRETE GRINDING CORP.
300 STRAIGHT ST. PATERSON, N. J.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES
April 22 Minnesota

STREETS AND ROADS
April 22 Minnesota

† **Ark., Fort Smith**—PAVING—BA 5/5—U. S. Eng., P.O. Box 867, Little Rock, airfield paving, runway exten., drainage and lighting, Fort Smith Airport, ENG-03-050-55-104, $500,000-$1,000,000. Extended date. CD 4/1.

SOON LETS CONTRACT—BUILDINGS

Tex., Houston—OFFICE—Houston American Life Insurance Co., 4604 Main St., soon lets contract 2 story, bsmnt. office. $500,000. Zimmerman & Bible, 500 Stuart Ave., archts.-engrs. Walter P. Moore, 2 Pinedale St., engr. CD 3/30.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

S. J. Groves & Sons Co., Wesley Temple Bldg., Minneapolis, Minn. CA $844,017. aprons and runway strengthening at Minneapolis-St. Paul International Airport. (Wold-Chamberlain), MINNEAPOLIS, MINN. U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, Minn. CD 3/29, under LB.

† **Shanahan Constr. Co.**, Clayton, Mo. LB $695,211. storage facilities at Sedalia Air Force Base, Inv. 23-028-55-61, SEDALIA, MO. U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo. Bids Mar. 25. CD 3/8.

▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck,

N. D.—**W. H. Noel Co., Jamestown, N. D., CA, $170,532.** base, b. conc. 10.126 mi. F-126 (3) Barnes Co.; CA $240,204. base, b .conc. surf. 12.628 mi. S-289 (3) and F-198 (4), Bottineau Co.;

N. D.—**Schultz & Lindsay Constr. Co.**, Jamestown, N. D., CA, $554,774 c. conc., etc. 7-324 mi. IN-137 (31), Cass Co.;

N. D.—**Bradbury Constr. Co.**, Aberdeen, S. D., CA; $426,030 base, b. conc 14.738 mi. F-285 (10) Richland Co. Grand total $1,391,540. Bids Apr. CD 3/16.

Douglas Contractors, Keeline Bldg., Omaha, Neb., CA $179,179, transmission and distr. lines, Jefferson and Cage Counties, NEBRASKA. Norris Rural Public Power Dist., Beatrice, Neb. Bids Mar. 25. CD 3/9.

▲ **TEXAS**—State Hy. Comm., Austin,

Tex.—**F & C Eng. Co.**, P. O. Box 2426, Houston, Tex., CA $660,810, flexible base, b. conc. 18.69 mi. Hy. SH 73, Proj. F-1052 (24), Jefferson Co.;

Tex.—**Public Constr. Co.**, P.O. Box 380, Denton, Tex., CA $604,230, b. conc. 73.228 mi. Hy. US 271, 79, SH 64, 135 and 259. Proj. C-154-1-17, Smith, Rusk and Gregg Counties. Bids Mar. 22, awarded Mar. 31. CD 3/28, under LB.

▲ **TEXAS**—State Hy. Comm., Austin,

Tex.—**McKown & Sons**, P. O. Box 785, Austin, Tex., CA $910,244. flexible base, hot mix b. conc. 1.832 mi. Hy. US 81, Proj. UI 200 (18), Travis Co.;

Tex.—**F & C Engineering Co.**, P. O. Box 2426, Houston, Tex., CA $844,897, flexible base, c. conc. hot mix b. conc. 3,852 mi. Hy. US 90 and SH 235, Proj. IN 149 (11), etc., Orange Co.;

Tex.—**Norman L. Larson & Dean Skinner**, P. O. Box 5216, Austin, Tex., CA $1,060,837, grading, structures 14.418 mi. Hy US 81, Proj. IN 644 (13), Bell Co.;

Tex.—**Austin Road Co.**, P. O. 1590, Dallas, Tex., CA $700,896, flexible base, b. conc. 6.726 mi. Hy. US 90, Proj. IN 1039 (7), Harris Co. Grand total $3,516,874. Bids Mar. 23, awarded Mar. 31. CD 3/30 under LB.

† **McKenzie Constr. Co. & Whittle Contg. Co.**, Box 11445, c/o White Rock Station, Dallas, Tex., CA $574,318, est. $750,000-$1,750,000, constr. Trutie Creek Pressure Sewer, Part IV, Trinity River, near Dallas, CIVENG-41-443-55-36, TEXAS. U. S. Eng., Box 1600 Fort Worth, Tex. Bids Mar. 10. CD 3/16, under LB.

▲† **MONTANA**—Bureau P. Rds., Dpt. Commerce, Morgan Bldg., Portland, Ore.,

T. **Marrazzo**, 308 N. Owyhee St., Boise, Idaho, CA $1,188,284. bridge constr. on Devil's Elbow section of Columbia Falls-Glacier Park Hy. FHP 13-A2, E1, F4, Flathead Co. CD 3/30, under LB.

COLORADO—State Hy. Dpt., State Office Bldg., Denver, **Northwestern Eng. Co.**, 6000 Colorado Blvd., Denver, Colo., CA, $533,300, est. $530,854. stab. plant mix

asph. surf., c. conc. paving 5.424 mi. Combined Colo. Proj. I-FI-002-2 (28) Unit 2 and FI 002-2 (20) Unit 2, Douglas Co. Bids Mar. 30. CD 3/15.

† **H. B. Zachry, Constr. Div.**, Box 2570, San Antonio, Tex., CA $786,017. airfield and base facilities, Holloman Air Force Base, Inv. No. ENG-29-005-55-76, ALAMOGORO, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Mar. 25. CD 4/6, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Johnson, Drake & Piper**, 1138 Baker Bldg., Minneapolis, Minn. CA Approx. $7,048,000. general contract main section of Southdale SHOPPING CENTER, 66 St. and France Ave. S., EDINA (MINNEAPOLIS P. O.), MINN. The Dayton Co., Seventh St. and Nicollet Ave., and L. S. Donaldson Co., 601 Nicollet Ave., Minneapolis, Minn. CD 2/8, under LB.

▲ **James Leck Co.**, 211 S. 11 St., Minneapolis, Minn. CA $1,100,000. general contract PARTS DEPOT, 210x560 ft. warehouse, 1 story, 60x240 ft. office, St. Anthony Blvd. and Marshall St. N.E., MINNEAPOLIS, MINN. Ford Motor Co., 966 S. Mississippi River Blvd., St. Paul, Minn. Bids Mar. 21. CD 3/9.

▲ **Gamble Constr. Co.**, 804 Pine St., St. Louis, Mo. LB Approx. $1,000,000. SERVICE BLDG. No. 32, U. S. Rte. No. 66 and Brown Rd., ROBERTSON, MO. McDonnell Aircraft Corp., Lambert-St. Louis Municipal Airport, Robertson 21, Mo. Bids Mar. 7. CD 3/3.

Lippert Bros., 2800 N. Santa Fe St., Oklahoma City 5, Okla., CA $800,000. 130,500 sq. ft. WAREHOUSE, 36th and Lincoln Sts., OKLAHOMA CITY, OKLA. Safeway Stores Co., Inc., 6111 Pacific St., Huntington Park, Calif. Bids Mar. 10 Awarded Mar. 30. CD 3/4.

W. B. Abbott, Jr., Box 585, Lubbock, Tex., LB $638,261, est. $600,000. HIGH SCHOOL, ELEMENTARY SCHOOL, brick, concrete, steel constr., BROWNFIELD, TEX. Brownfield Independent School Dist., Brownfield, Tex. Bids Mar. 29. CD 3/17.

▲ **Rambo Constr. Co.**, 1618 Rogers Rd., Fort Worth, Tex., CA $920,603, general constr.;

Beals Plumbing & Heating Co., 315 W. 13 St., Fort Worth, Tex., CA $600,000, plumbing, heating and air-conditioning;

Westinghouse Corp., Elevator Div., 1614 Canton St., Dallas, Tex., CA $531,000, elevators for 24 story BANK-OFFICE addn., FORT WORTH, TEX. Continental National Bank, c/o George Thompson, Jr., pres., 7th and Houston Sts., Fort Worth, Tex. Grand total $2,051,603. Bids Mar. 3. CD 3/1.

Texas Gulf Constr. Co., Inc., 2215½ Mechanic St., Galveston, Tex., LB $756,380. 100-room HOTEL, GALVESTON, TEX. The Beach Corp., c/o Miramir Hotel, Seawall Blvd., Galveston, Tex. Bids Mar. 25. CD 3/15.

Craftsmen Constr. Co., 1337 E. 18 St., Denver, Colo., LB $848,954, est. $625,000, HIGH SCHOOL addn., RANGELY, COLO. School Dist. No. 4, Rio Blanco Co., Rangely, Colo. Bids Mar. 30. CD 3/10.

Schneider Constr. Co., Box 13157, Houston, Tex., LB $526,476, 3 story, 152x166 ft. concrete, combined GYMNASIUM-DORMITORY, HUNTSVILLE, TEX. Sam Houston State Teachers College, Huntsville, Tex. Bids Mar. 29. CD 3/1.

Marvin Henry Builders, Inc., 2002 Chipendale St., Houston, Tex., Own Forces, $696,600. (f) 34 DWELLINGS and (g) 43 DWELLINGS, PASADENA, TEX. CD 7/29.

FAR WEST

BIDS ASKED—BUILDINGS

▲ **Wash., Opportunity** — SCHOOL — BA 4/26 — Central Valley School Dist. 356, Opportunity, 1 story, 90,000 sq. ft., masonry, rein.-con. Senior High School. $1,000,000. Plans deposit $50. V. L. Wulff, W. 1526 Riverside Ave., Spokane, archt. CD 11/16/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **J. H. Wise & Sons**, 222 Broadway Ave., Boise, Idaho, LB, $658,229, est. $678,567, special S.A.C. storage program, Mountain Home Air Force Base, Inv. 55-25, MOUNTAIN HOME, IDAHO. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids Mar. 29. CD 3/16.

† **Hadden Stewart Co.**, 712 E. 9 St., Tucson, Ariz., LB, $673,370, AIR FORCE STATION M-92, Cantonment Area, ENG-04-353-55-112, TUCSON, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 30. CD 3/15.

▲† **Lembke, Clough & King**, Box 1391, Las Vegas, Nev. LB $1,365,353, est. $1,500,000. addnl. facilities, Nellis Air Force Base, ENG-04-353-55-117, LAS VEGAS, NEV. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 29. CD 4/4, under LB.

† **George A. Fuller**, 3100 W. 8 St., Los Angeles, Calif., CA, $597,018, research laboratory, Edwards Air Force Base, ENG-04-353-55-114, MUROC, CALIF. U. S. Eng. 751 S. Figueroa St., Los Angeles, Calif. Bids Mar. 29, awarded Mar. 30. CD 4/4, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Lembke, Clough & King, Box 1391, Las Vegas, Nev., CA $666,375, HOSPITAL addn., LAS VEGAS, NEV. South Nevada Memorial Hospital, 1800 W. Charleston Blvd., Las Vegas, Nev. Bids Mar. 9. CD 2/24.

San Bernardino Valley Builders, 1153 F St., San Bernardino, Calif. Owner Builds, $361,100. 50 frame, stucco DWELLING in Tract 3654, SAN BERNARDINO, CALIF.

Leon Slavin, 496 S. San Vicente Blvd., Los Angeles, Calif., CA, $773,000, Eva Edwards SCHOOL, COVINA, CALIF. Covina School Dist., 475 N. 2 St., Covina, Calif. Bids Mar. 28. H. L. Gogerty, 3123 W. 8 St., Los Angeles, Calif., archt.

▲ **Harvey A. Nichols Co.**, 926 E. Slauson St., Los Angeles, Calif., CA, $1,538,000. Morningside High SCHOOL, INGLEWOOD, CALIF. Inglewood Unified School Dist., 111 N. Grevillea Ave., Inglewood, Calif. Bids Mar. 25. CD 3/15.

Manderbach Constr. Co., 1837 Victory Blvd., Glendale, Calif., LB, $510,090. 3 story, 40,000 sq. ft. lift slab concrete OFFICE, LOS ANGELES, CALIF. Pacific Homes Corp., 1055 N. Kingsley Dr., Los Angeles, Calif. Bids Mar. 25. CD 3/22.

Kauffman Homes, Inc., 2918 W. Compton Blvd., Gardena, Calif., Owner Builds, $510,000, 60 frame, stucco DWELLINGS, Tract 20520, WEST COVINA, CALIF.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
May 4 Ontario

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **International Minerals & Chemicals Corp.**, 20 N. Wacker Dr., Chicago 6, Ill., U. S. A., Owner Builds, $1,500,000, nepheline syenite PLANT, at Blue Mountain, near HAVELOCK, ONT.

▲ **Foundation Co. of Canada**, 1900 Sherbrooke St. W., Montreal, Que., LB Est. $1,500,000. 1 story 240x400 ft. PLANT and 2 story, 45x300 ft. OFFICE section, MONTREAL, QUE. Gillette Safety Razor Co. of Canada Ltd., 1085 St. Alexander St., Montreal, Que. Bids Mar. 22. CD 3/9.

Will-Art Constr. Co. Ltd., 46 Gouineau Blvd., Montreal, Que. Owner Builds. $690,000. 60-unit HOUSING DEVELOPMENT, MONTREAL, QUE. H. M. Tolchinsky, 4708 Van Horne Ave., Montreal, Que., archt.

ALASKA

HEAVY CONSTRUCTION

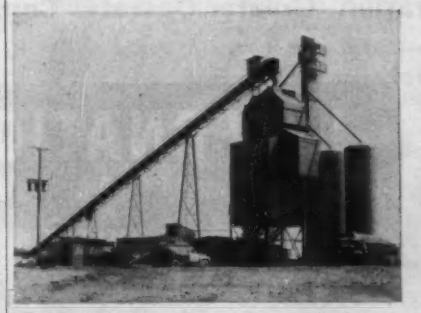
LOW BIDS AND CONTRACTS

▲† **Peter Kiewit Sons' Co.**, 1300 Aloha St., Seattle, Wash. CA $4,812,102. auxiliary bldgs. fueling sys. and airfield work, Inv. 55-46, GALENA, ALASKA. U. S. Eng., Anchorage, Alaska. CD 3/28, under LB.

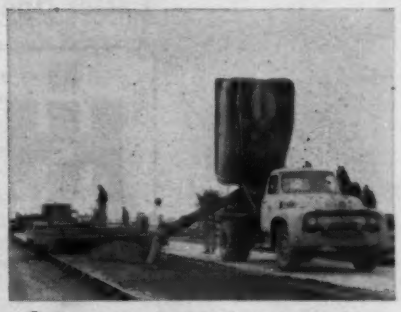
BUILDINGS

LOW BIDS AND CONTRACTS

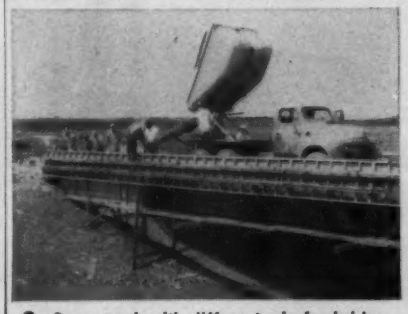
† **Peter Kiewit Sons' Co.**, 1300 Aloha St., Seattle, Wash., CA $935,024, est. $910,187. indoor training facility, enlisted men's service CLUB and conversion of existing BARRACKS, Inv. 55-34, BIG DELTA, ALASKA. U. S. Eng., Anchorage, Alaska. CD 12/22, under LB.



1. Central plant produces 3 types of mixes



2. Dumpcretes haul 4 yds. to paving site



3. Same truck with different mix for bridge

4. Access road widening gets this 4 yd. load

Dumpcretes haul concrete for paving, widening, bridges on Ohio Turnpike

D. W. Winkelman's simplified concrete operation on the Ohio Turnpike has created a stir of interest among paving contractors. With central-mixing and Dumpcretes he produced and hauled concrete for paving a 10-mile section . . . for widening access roads . . . and for bridges, retaining walls and other structures. This method allowed pours on many of these jobs to be made at the same time with concrete produced by a single plant . . . and eliminated pavers, water trucks and the men to run them. The same method cuts costs on small jobs, too. Write for job reports.

MAXON
DUMPCRETE
Fastest from plant to pour

Send Me ☐ Concrete for Paving and Structures on Ohio Turnpike ☐ Job Reports on Low Cost Non-Agitating Hauling of Concrete

Name _____
Firm _____
Street _____
City _____

Manufacturing Division, Maxon Construction Co., Inc., 706 Talbott Building, Dayton 2, Ohio

Introducing the New IH

New 262-HP Diesel Engine for more speed, more power

Faster, Easier Loading and Ejection

Improved Hydraulic Steering

New Cable Control Unit

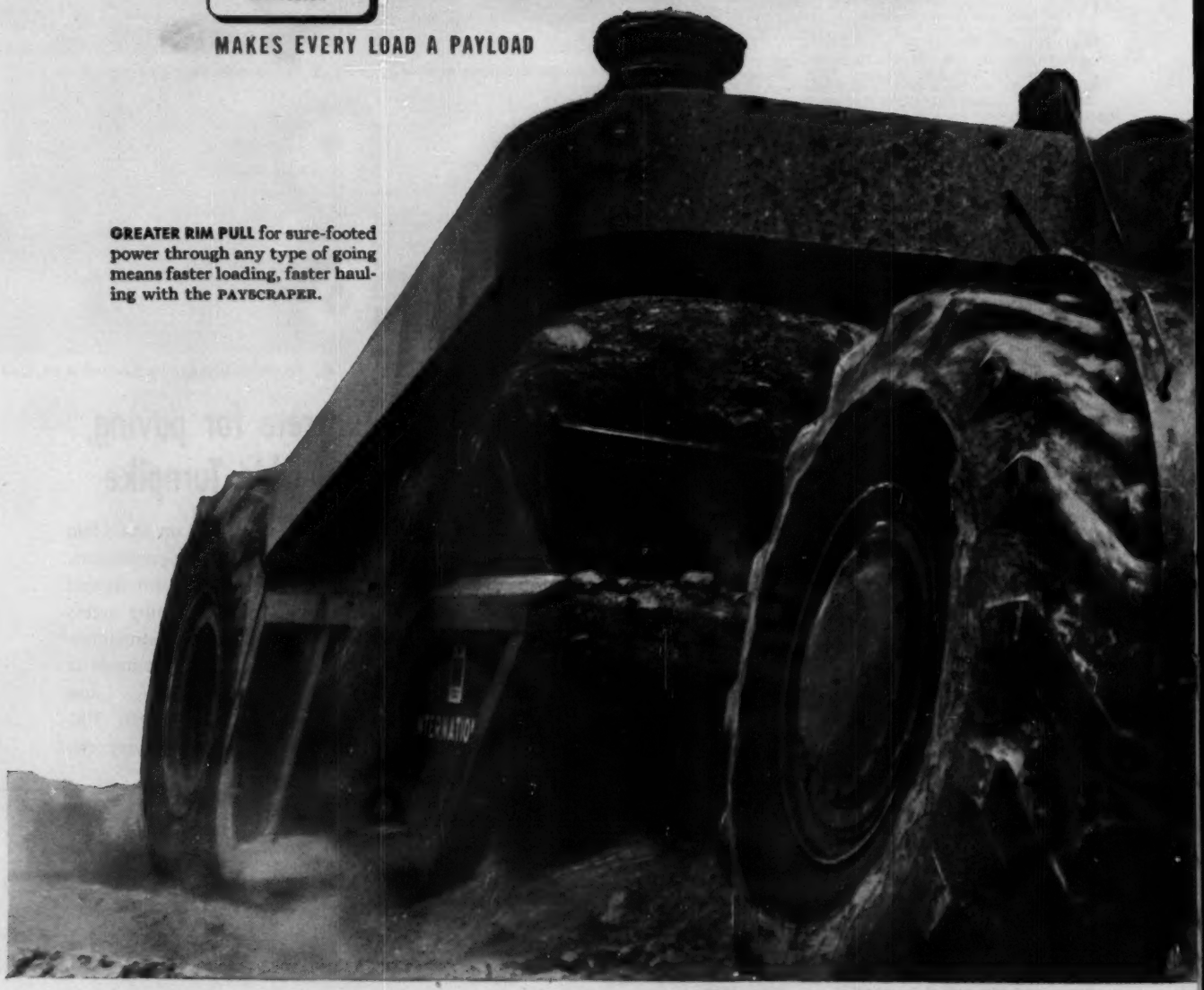
Easier Operation, Greater Operator Comfort

INTERNATIONAL HARVESTER

INTERNATIONAL®
INDUSTRIAL POWER

MAKES EVERY LOAD A PAYLOAD

GREATER RIM PULL for sure-footed power through any type of going means faster loading, faster hauling with the PAYSCRAPER.



"75" Payscraper

For the biggest of the big jobs, where outstanding performance is the key to profit, here's the rig:

The new INTERNATIONAL Model 75 PAYSCRAPER.

With that 262-horsepower diesel engine up ahead, you get plenty of power to pull out of the cut with an 18-cubic-yard heaped load. Up hills or highballing along haul roads at more than 24 miles per hour, the PAYSCRAPER has the power to deliver more production per day.

To see this great machine in action on your job, call your INTERNATIONAL Industrial Power Distributor today. See for yourself what this great new machine can do for you.

INTERNATIONAL HARVESTER COMPANY
CHICAGO 1, ILLINOIS

here's the backbone of the highway...

CLINTON WELDED WIRE FABRIC

Embedded in the concrete pavement, Clinton Welded Wire Fabric is the steel reinforcement that literally holds the highway together. The heavy, welded wires give positive mechanical anchorage of the concrete which means better load distribution and controls cracking.

Clinton Welded Wire Fabric is available in a wide variety of gauges and spacings for all reinforcing requirements. It meets all A.S.T.M. and A.A.S.H.O. specifications.

2608

WICKWIRE SPENCER STEEL DIVISION • Atlanta • Boston • Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia
THE COLORADO FUEL AND IRON CORPORATION • Albuquerque • Amarillo • Billings • Boise • Butte • Casper • Denver • El Paso
Ft. Worth • Houston • Lincoln (Neb.) • Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City
San Francisco • Seattle • Spokane • Wichita • CANADIAN REPRESENTATIVES AT • Calgary • Edmonton • Toronto • Vancouver • Winnipeg

UNIT PRICES

Chicago Airport Runway

Flexible pavement took the $1.319-million award for O'Hare Field runway No. 3, Chicago International Airport. This was 35.5% below the price bid for rigid pavement. Ralph H. Burke, Chicago, is airport consultant. Rock Road Construction Co., low of 11 on bituminous concrete, bid $58,900 below second for the award.

The only concrete pavement in this contract is for one 200x500-ft section at runway end and for connecting taxiway and warmup pads. Main part of contract is a 200x8,000-ft runway, five taxiway bleedoffs, 100x400 ft, and a 100x4,000-ft taxiway. These use aggregate fill, 8-in. waterbound macadam, and a bituminous concrete surface 2-in. thick on runway, 3-in. on taxiways. City furnishes granular fill.

The contractor has 198 days to complete work. Wage rates are, for stationary engineers: pavers or double-drum mixers over 27E $3.30, 27E or under $3.20; rollers, except grade $3.05, grade rollers $2.90; cranes, asphalt plants $3.05; laborers, asphalt $2.425, tampers and smoothers $2.50, paving form setters $2.65. Welfare is $0.05 for engineer, $0.75, laborer.

1C Rock Road Construction Co., Chicago, Ill. $1,319,602
2 Allied Asphalt Paving Co., Chicago, Ill. 1,350,767
11 Leininger Constr. Co., Chicago, Ill. 1,772,040
EE Ralph H. Burke, Chicago, Ill., flexible pvmt 1,461,842

Bids: 1-31-55 Items	Unit	Quantity	Unit Prices 1C	2
Flexible pavement			**$1,319,602**	**$1,350,767**
Topsoil, stripping	cy	200,000	$0.37	$0.32
Excavation, uncl	cy	330,500	0.37	0.43
Topsoil & seeding	ac	102	450.00	450.00
Surface drainage:				
CMP 15", 14 ga	lf	325	6.00	5.75
15", 16 ga	lf	1,085	5.50	5.25
RCP, 48"	lf	1,035	20.50	20.00
54"	lf	5	25.00	30.00
60"	lf	210	29.00	32.00
catchbasins	ea	4	220.00	250.00
manholes	ea	1	225.00	300.00
riprap	cy	100	6.00	10.00
duct work	lf	2,540	6.00	5.50
Compact gran fill,				
matl on site	cy	71,000	0.85	0.70
matl furnished	cy	24,000	0.01	1.85
PC concrete pavement 15"	sy	44,000	8.15	7.30
Water bound macadam base crse	sy	238,600	1.45	1.29
Bit conc wearing surface				
2"	sy	167,000	0.83	1.00
3"	sy	71,900	1.18	1.60
3" to 0"	sy	2,800	0.65	0.75
Concrete, structural PC				
reinf conc headwalls	cy	105	60.00	70.00
plain conc cradles	cy	25	40.00	55.00
Reinforcing steel	lb	8,000	0.15	0.15
Wearg surf protect seal	sy	241,350	0.10	0.10
Runway & taxiway markg	ls	ls	2,000	6,000

Three contractors bid on the rigid paving alternate:

12 Contracting & Material Co. Evanston, Ill. 2,046,547
13 Arcole Midwest Corp. Evanston, Ill. 2,192,616
14 S. J. Groves & Son Springfield, Ill. 2,352,380

EE Ralph H. Burke, Chicago, Ill., rigid pvmt. 2,061,389

Rigid pavement		2,046,546	2,192,615	
			12	13
Topsoil stripping	cy	200,000	0.37	0.35
Excavation, uncl	cy	320,000	0.58	0.43
Topsoil & seeding	ac	102	575.00	320.00

Bids: 1-31-55 Items	Unit	Quantity	Unit Prices 1C	2
Surface drainage:				
CMP 15" 14 ga	lf	325	7.15	5.80
15" 16 ga	lf	1,095	6.53	5.50
RCP, 48"	lf	1,035	23.80	26.20
54"	lf	5	31.50	35.00
60"	lf	210	35.70	38.90
catchbasins	ea	4	203.00	240.00
manholes	ea	1	251.00	230.00
riprap	cy	100	6.90	20.00
duct work	lf	2,540	4.88	5.90
Compact granular fill:				
matl on site	cy	58,700	1.00	0.88
matl furnished	cy	20,500	3.25	0.10
PC concrete pavement 9"	sy	167,000	4.64	5.70
12"	sy	71,900	5.98	7.20
15"	sy	44,000	7.31	7.90
Bit concrete surface	sy	2,800	1.55	1.00
Concrete, structural PC:				
reinf conc, headwalls	cy	105	51.00	80.00
plain conc cradles	cy	25	35.00	25.00
Reinforcing steel	lb	8,000	0.17	0.14
Runway & taxiway markg	ls	ls	8,650	7,000

Garrison Dam Bids

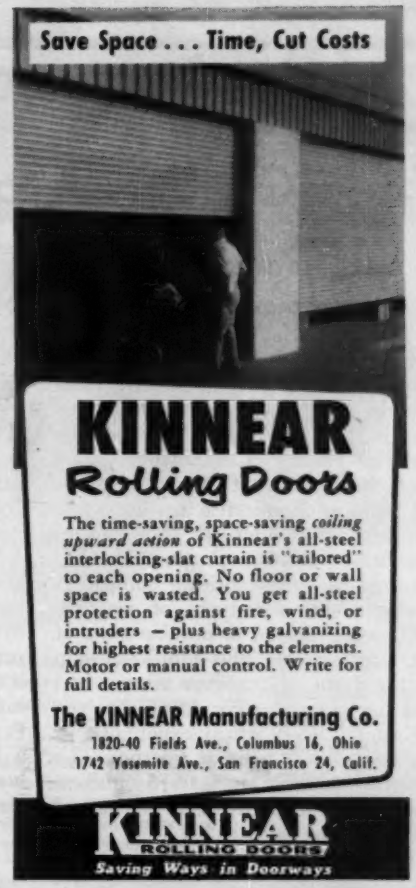
Garrison Dam spillway stilling basin low bid at $6.949 million was 9% below the engineer's estimate. Peter Kiewit Sons' Co. and Morrison-Knudsen Co., Inc., bid $1.13-million below second, to continue as joint venturers on the dam construction.

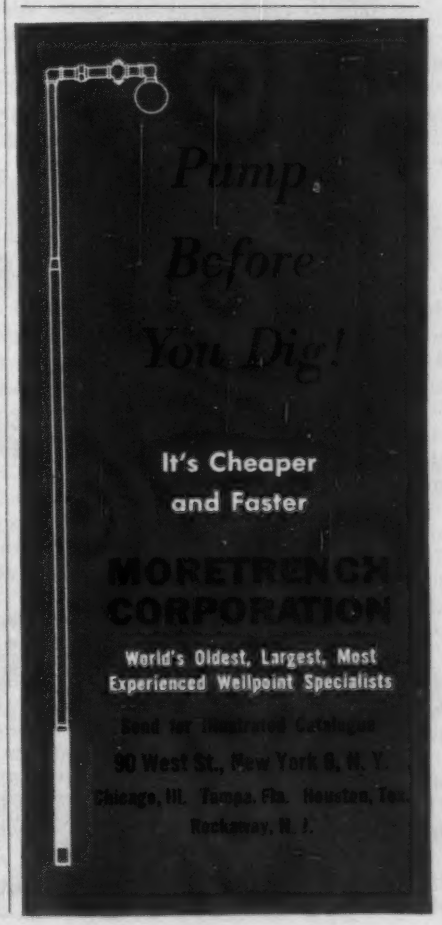
Work is under the direction of District Engineer, Corps of Engineers, Riverdale, N. D. This dam is on the Missouri River 75 miles northwest of Bismarck. Completion date is Dec. 31, 1957. Liquidated damages are set at $200 a day.

Minimum wage rates include: concrete laborers $1.53 per hour, plumbers and steamfitters $3.00, cement masons $2.40; operators, tractors 40 hp and under $2.00, mixing plant 1 or more mixers $2.50.

1C Peter Kiewit Sons' Co., Omaha, Neb., and Morrison-Knudsen Co., Inc., Boise, Idaho. $6,963,850
2 F&C Engineering Co., Houston, Texas 8,089,617
3 Tecon Corp., Dallas, Texas 8,299,789
EE Corps of Engineers, Riverdale, N. Dak. 7,666,195

Bids: 2-15-55 Items	Unit	Quantity	Unit Prices 1C	2
Excavation unclassified	cy	240,000	$1.10	$1.71
Concrete backfill	cy	6,500	17.00	16.65
Fill, pervious	cy	175,000	1.10	1.40
impervious	cy	86,000	0.80	0.80
Bank run gravel	cy	11,000	0.75	1.65
Perf clay pipe 12" ϕ	lf	9,000	4.50	4.00
18"	lf	2,330	7.80	8.00
21"	lf	385	11.00	12.00
RC pipe, 18" ϕ	lf	90	6.80	5.50
24"	lf	130	9.40	9.00
36"	lf	125	16.60	17.00
RC manhole section, 48" ϕ	lf	30	28.50	25.00
Perforated clay plate	ea	354	5.50	5.00
Filter sand	cy	4,200	1.84	4.25
Screened gravel	cy	20,000	1.84	4.50
Relief wells	ls	ls	32,500	13,500
Anchor shaft, type A	lf	123,000	1.10	1.70
no shaft, type A	ea	8,766	7.00	13.50
Anchor shaft, type B	lf	67,000	4.50	4.15
no shaft, type B	ea	2,662	25.00	37.50
Concrete, wall	cy	76,800	14.80	15.76
slab	cy	121,300	9.25	11.51
paved gutter	cy	115	35.00	36.00
misc	cy	465	70.00	80.00
Portland cement	bbl	220,000	5.80	5.50
Steel reinforcement	lb	15,600,000	0.107	0.132
Steel waterstop, corrosion resisting	lf	2,400	3.00	3.20
Tile gages	ls	ls	3,700	3,200
Slope protection rock	cy	18,900	8.00	11.00
spalls	cy	8,300	10.00	12.85
Misc. metalwork	ls	ls	40,000	31,000
CIP, valves, accessories	ls	ls	35,500	40,000
Foundation piezometers	ls	ls	9,000	5,600
Asbestos-cement conduit	ls	ls	3,300	1,700
Drain P clean systems	ls	ls	21,000	26,000


Save Space . . . Time, Cut Costs
KINNEAR
Rolling Doors
The time-saving, space-saving coiling upward action of Kinnear's all-steel interlocking-slat curtain is "tailored" to each opening. No floor or wall space is wasted. You get all-steel protection against fire, wind, or intruders — plus heavy galvanizing for highest resistance to the elements. Motor or manual control. Write for full details.
The KINNEAR Manufacturing Co.
1820-40 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
KINNEAR
ROLLING DOORS
Saving Ways in Doorways


Pump Before You Dig!
It's Cheaper and Faster
MORETRENCH CORPORATION
World's Oldest, Largest, Most Experienced Wellpoint Specialists
90 West St., New York 6, N. Y.
Chicago, Ill. Tampa, Fla. Houston, Tex. Rockaway, N. J.

The "Civilian Atom" Takes a Big Step Ahead

AEC says four groups have applied for licenses to build power plants. Westinghouse plans its own test reactor

Contracts for private atomic plants may soon begin to play an important part in ENR's figures on industrial awards (below). Last January, the Atomic Energy Commission asked U. S. businessmen to make proposals for building atomic reactors with government aid. Under this "power demonstration reactor program," AEC planned to license private companies to build different types of reactors. AEC was prepared to provide some of the capital outlay, plus additional help in the form of rent-free atomic fuel and free research. For AEC, the payoff would be practical experience in the operation of full-size reactors. The commission will have $75 million available for this purpose at the start of the fiscal year on July 1.

Last week AEC Chairman Lewis L. Strauss announced his agency has received four proposals under the program. The total amount of money involved is about $150 million, of which the AEC would provide about 10% to 20%.

• **Applicants**—Here are the applicants:

• The biggest proposal is a 180,000 kw plant by Commonwealth Edison Co., Chicago, to be completed by 1960 in the Chicago area. According to Willis Gale, the company's board chairman, General Electric Co. would be prime contractor on this plant and Bechtel Corp., of San Francisco, would be "engineer-constructor." Bechtel has been associated with Commonwealth Edison and three other utilities in a nuclear power study group.

• Yankee Atomic Electric Co., Boston, which represents a group of New England utilities, has proposed a 100,000 kw plant to be located in western Massachusetts, to be finished in late 1957.

• Detroit Edison Co. and a group of other utilities have proposed a 100,000 kw plant for the Detroit area, to be finished in late 1958.

• Consumers Public Power District of Columbus, Neb., has proposed a 75,000 kw plant for Nebraska, to be finished in 1959.

Each proposal plans a different type of reactor. AEC expects to study the plan for several weeks. It may accept all of them. One major hitch is the insurance problem (ENR Mar. 31, p. 110). The private groups assume that they will be able to get liability coverage at reasonable cost, either from private underwriters or from the U. S. government.

• **Westinghouse test reactor**—Soon after the AEC announcement, Westinghouse Electric Corp. said it plans to spend $6.5 million to build the first privately owned test reactor. The reactor, to be financed entirely by Westinghouse, will be built at Blairsville, Pa., about 40 mi east of Pittsburgh and will be ready in two years. Westinghouse says this unit will be the "first element" in a "reactor center."

The reactor will be used to test nuclear materials under operating conditions inside a reactor. According to Westinghouse's president, Gwilym A. Price, lack of test facilities has been the "number one bottleneck in America's progress in nuclear power." So far, private firms have had to use what testing time was available at government reactors.

Consolidated Edison Co.'s previous proposal to build a 250,000 kw plant near Peekskill, N. Y. (ENR Mar. 17, p. 89) has nothing to do with the demonstration program. Con Ed plans to do all its own financing. AEC is providing much of the money for an atomic power plant now being built at Shippingport, Pa., in cooperation with Duquesne Light Co.

Industrial Awards Increase Sharply for First Quarter

Total volume of industrial contracts reported to ENR during the first quarter of 1955 was $518 million, a substantial 51% increase over 1954 (table, below).

Most lines of industry awarded more contracts during the quarter just past than they did in the same 1954 period. The most sizable gain in dollar volume was in the far-flung "process industries" category, which in-

Industrial Building Contracts by Industry

As Reported by Engineering News-Record

Industry	Dollar Value First Quarter 1954 (Millions)	1955	% Change '54–55*	Number of Plants First Quarter 1954	1955	% Change '54–55*
All Industry	**$316.5**	**$518.3**	**+ 51**	**529**	**407**	**− 29**
These are running above 1954 $ volume . . .						
Process industries	$104.8	$244.1	+115	88	86	−10
Public utilities	40.2	76.7	+76	17	21	+14
Auto factories	9.3	65.4	+549	4	6	+38
Aircraft	5.6	8.3	+38	10	5	−54
Textiles (excl. rayon)	5.1	6.6	+20	8	8	−7
General (incl. ref. and cold storage)	27.5	32.8	+10	130	119	−16
These are running below 1954 . . .						
Machinery and parts	47.4	47.9	− 7	95	76	−26
Food industries	53.2	24.2	−58	124	57	−58
Service, automotive	7.3	6.0	−25	26	13	−54
Metal ref. & rolling	7.7	3.7	−56	5	4	−26
Wood industries	3.4	1.4	−62	13	9	−36
Railroads	3.6	1.2	−69	4	3	−30
Radio, TV, electronics	1.0	0.0	−100	2	0	−100
Foundries	0.4	0.0	−100	3	0	−100

* Based on average week: 12 weeks in '54, 13 weeks in '55.

cludes chemicals, paper, petroleum, rubber, and other groups. Public utilities showed a sharp gain, due to Consolidated Edison's contract with Babcock & Wilcox for the first atomic power plant to be privately financed.

Big awards for new automobile facilities are up.

Construction Equipment Sales On Upward Climb This Year

Although most manufacturers of construction equipment do not release monthly sales figures, latest available reports of two manufacturers indicate that the industry is running into a year of increasing sales as contract awards continue to increase in volume.

Caterpillar Tractor Co. reports sales of more than $62.5 million for the first two months, a 24.4% gain over the same 1954 period. And another maker of construction equipment, Gardner-Denver Co. (air compressors, rock drills, etc.) also reports 1955 sales are running well ahead of last year.

More Exporters of Equipment Get Ex-Im Bank Credit Lines

The Export-Import Bank is continuing its program of giving credit lines to construction-equipment manufacturers, so they can compete with credit terms of foreign manufacturers in selling capital equipment overseas (ENR Mar. 31, p. 110).

Latest awards are: $1.6 million to Baldwin - Lima - Hamilton's Construction Division at Lima, Ohio; $10 million to International Harvester Export Co., Chicago; and $550,000 to Koehring Co., Milwaukee.

Land Acquisition Headaches Still Go on in Connecticut

Connecticut's program of land acquisition for the Greenwich-Killingly Expressway is still operating under difficulties. Last week, Gov. Abraham Ribicoff extended until Sept. 1 an early June 1 deadline which had been set for removal of property owners.

He also asked the legislature to allow the highway department to make advance payments on land condemned for highways, so that property owners would be able to make down payments on other land.

Ribicoff has appointed a group of about 30 bankers to review land purchases in Fairfield County. Prices set by earlier appraisals have been questioned (ENR Mar. 31, p. 107), and the governor ordered a "freeze" on all settlements.

(*B&F Continued on page 112*)

An extremely flexible, high-pressure hose for continuous, heavy-duty service under the most severe operating conditions.

Inside and out, REVELATION has been designed to readily resist extreme wear, abrasion and severe service conditions encountered in quarries, mines, foundries, car ships, shipyards and contractors' work where high pressure compressors are used.

Specially-compounded Neoprene rubber tube and unique, abrasion-resistant rubber cover will not peel or separate from the low expansion carcass. Designed for working pressure to 300 lbs. P.S.I., except 1" I.D. size 250 lbs. P.S.I. Ask your jobber, or write us directly for details.

OTHER HOSES FOR SPECIFIC INDUSTRIAL NEEDS

Acid
Air
Chemical and booster
Contractors
Creamery
Dredging sleeves
Fire
Forestry
Mill
Oil Suction & Discharge
Paint Spray
Pile Drivers
Road Builders
Rock Wool
Sand Blast
Spray
Steam
Suction
Tank Truck
Vacuum
Vacuum Brake
Water
Water Discharge
Welding

ALSO BELTING, TUBING, MATS, PACKING AND FLEXIBLE PLASTIC PIPE

Be sure... use Hamilton... Always dependable!

MORE THAN THREE QUARTERS OF A CENTURY OF SERVICE TO INDUSTRY

HAMILTON
RUBBER MFG. CORP.
Executive Office and Factories,
108 Meade St., Trenton, N.J.
Branches in
PITTSBURGH • INDIANAPOLIS
LOS ANGELES • NEW YORK • SAN FRANCISCO
CHICAGO • CLEVELAND • HOUSTON

DREDGES
HYDRAULIC
DIPPER
CLAMSHELL

THERE'S AN ASD DREDGE FOR EVERY PURPOSE . . .

- River, canal and lake improvements.
- Drainage and land reclamation projects.
- Industrial channel and canal improvements.
- Sand and gravel production.

ASD dredges are engineered and designed to meet your needs . . . they're built to give you years of low-cost, profitable operation.

Write for free book "Dredges."

AMERICAN STEEL DREDGE CO. INC.
FORT WAYNE 1, INDIANA, U.S.A.

Money Grows a Bit Harder to Borrow, As U.S. Economic Weather Changes

The strength of the business recovery from last year's "readjustment" —plus a somewhat tougher attitude on credit by the Federal Reserve Board—is gradually making it more expensive to borrow money to finance construction. You can see that by comparing interest rates in this week's bond market with what they were a few months ago.

Since December 1, for instance, the average yield of Moody's top-grade corporate bonds has risen from 2.89% to about 3.00%. This means that prices of top-grade bonds already on the market have declined, increasing the yield to new buyers. A blue-ribbon corporation offering new bonds would have to offer a comparable yield to attract buyers.

During the same period, the Dow-Jones average of 20 representative municipal bonds has risen from about 2.30% to around 2.40%. And word from the mortgage market is that lenders are getting somewhat choosier about the mortgages they will buy.

• **Change in the weather**—The fact is that the whole economic situation has changed in the direction of tighter money. This is because prosperity has brought more demand for loans of all kinds.

Bank loans to business, for instance, have increased by more than $400 million since the start of the year. During the same period in 1954, they declined by about $700 million. Consumer loans are also up; they declined during this period last year. ENR's figures on new capital for construction (which do not include mortgages) show a gain of 4% for this year so far as compared with 1954. Mortgage recordings in January (latest available) were $2 billion as compared with $1.4 billion in 1954.

• **Banks sell bonds**—Partly because they can loan more money, commercial banks have been selling off more securities than they have been buying. Last year they were big buyers of securities, especially municipal bonds. This decline in demand means higher rates for the types of securities that banks buy.

Another important factor is the attitude of the government. For about two years, the Treasury had been careful not to compete with other corporations, local governments, and home buyers by borrowing long-term money. Then in February it sold $1.9 billion of 40-year 3% bonds in exchange for a maturing issue. This tended to boost interest rates for other borrowers of long-term money, since it reduced the volume of available investment funds.

• **FRB's tougher policy**—Even more important than the Treasury's action has been the change in policy by the Federal Reserve Board. Ever since it dropped its "sound money" policy back in the late spring of 1953, FRB had been making things easy for borrowers. But in December FRB started absorbing the extra lending power which commercial banks had in the form of excess reserves with their Federal Reserve Banks. Banks have been selling securities to keep up their reserve positions. That drives down bond prices—thus making rates a little higher. Beause yields on bonds are higher, some investors direct funds into bonds that would otherwise have gone into mortgages. That makes the supply of money available for mortgages a bit smaller.

FRB has made it plain that it intends to keep bank credit fairly tight as long as there is a chance that the business boom could develop inflationary tendencies. But it will be careful not to tighten credit to the point where the boom would be chopped off.

• **What does it mean?**—What does all this mean for construction? The fact that interest rates are a few fractions of a per cent higher won't affect the decisions of most clients who are planning to borrow money for construction. It will affect some projects, however. When interest rates decline over a long period, as they have been since early 1953, investors and lenders gradually relax their standards. But when rates start rising, the psychology changes. Investors and lenders become a bit more choosy.

The trend to more caution among mortgage lenders will help keep our homebuilding boom from getting out of hand (page 21). And this caution is likely to postpone a few revenue bond issues that might otherwise have been financed.

Executives Quit to Form New Equipment Company

Three executives of Heltzel Steel Form & Iron Co. and its subsidiary, Flexible Road Joint Machine Co., both of Warren, Ohio, have resigned to form a new company whose products will be competitive. The new firm is General Road Machines, Inc., with offices at Niles, Ohio, and with plants at Niles and Newton Falls, Ohio.

General Road Machines is making equipment for handling concrete paving and plans to expand capacity before long. The three executives are: Donald T. Heltzel, president of the new company; Jack J. Marcello, sales vice-president; and Michael Hudis, production vice-president.

Michigan Voters Approve Construction Bond Issues

Michigan voters voted to finance large construction programs at last week's election. Here are the highlights:

A constitutional amendment to authorize a $100-million bond issue for school aid was approved overwhelmingly. It empowered the legislature to levy new taxes to retire the loan, if needed. To qualify for funds to build new schools, communities are required to levy at least 13 mills property tax for debt service and to show proof of their need for such aid. Districts must continue to levy 13 mills until the state has been repaid.

Voters in Wayne County (Detroit) approved a proposal to sell $26 million of general-obligation bonds to start building a $50-million water intake and filtration plant to serve undeveloped areas in the southwestern part of the county. Eventually, it would pump 100 mgd and would also serve such communities as Lincoln Park, River Rouge, Allen Park, and others which now get water from Detroit.

The Wayne County voters also OK'd about $16 million worth of civic buildings.

In Harper Woods, voters turned out councilmen who had been fighting extension of the Edsel Ford Expressway, and elected candidates who favor extending the parkway through the town. The new councilmen also want to see J. L. Hudson Co. go ahead with plans for the proposed Eastland Shopping Center, to be patterned after Hudson's gigantic Northland Shopping Center. The center will cost around $15 million, and will have space to accommodate about 7,500 cars.

A number of smaller projects were approved by voters around the state.

Activity This Week

As reported to ENR
(In millions of dollars)

Amount of contracts let

	This Week	Cumulative 15 wks 1955	1954	% chge
Federal	$41.5	$492.6	$269.1	+83
State and municipal	98.2	1,372.2	1,235.5	+11
Total public	139.7	1,864.8	1,504.6	+24
Total private	133.0	3,109.9	1,912.3	+63
U. S. Total	$272.7	$4,974.7	$3,416.9	+46

Contracts by type of work

Waterworks	$3.4	$76.8	$56.1	+37
Sewerage	8.5	112.4	94.8	+19
Bridges	8.8	134.6	119.3	+13
Highways	51.3	519.1	416.1	+25
Earthwork, waterways	5.2	126.9	77.9	+63
Buildings:				
Public, excl. hsg.	23.9	478.4	476.7	+0.3
Housg., public	0.6	52.9	53.7	−1
Housg., private	75.0	1,900.3	1,056.9	+80
Commercial	31.4	451.7	335.1	+35
Industrial	20.0	587.8	453.2	+30
Unclassified	44.6	533.8	277.1	+93
Total	$272.0	$4,974.7	$3,416.9	+46

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction

(millions of dollars)

	Week of Apr. 7 1955	Cumulative 14 wks 1955	% chge '54-'55
Corporate securities	$41.2	$804.6	+1
State and municipal:			
All except housing	105.5	1,114.2	+8
Housing	5.9	41.9	−2
Federal loans	1.2	23.2	−18
Federal aid	...	...	...
Total non-federal	$153.9	$1,983.9	+4
Federal appropriations:			
In U. S.	...	...	...
Outside U. S.	...	...	...
Total new capital	$153.9	$1,983.9	+4

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	4/7	647.95	311.47	135.83
	3/31†	647.49	311.25	135.74
Building cost	4/7	461.02	249.21	131.05
	3/31†	460.62	249.00	130.94
Volume	Mar.	691	281	200
	Feb.	459	187	133

† Official monthly index for April

HARMON AIR FORCE BASE
NEWFOUNDLAND

"Compaction Saves Pile Cost"

VIBROFLOTATION® Solves Army's Granular Soil Foundation Problem

HARMON AIR FORCE BASE, Newfoundland, affords another example of the efficiency and economy of soil consolidation by VIBROFLOTATION®. Estimated savings of $25,900 over the cost of cast-in-place concrete piles permitted U. S. Corps of Engineers to more than double their original job scope.

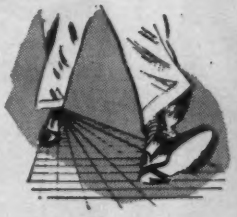
VIBROFLOTATION® provides permanent support for the heaviest static or vibrating loads, and eliminates danger of future settlement. Applicable anywhere in the world where soil is sandy or granular. Investigate foundation savings for industrial facilities, airports, highways, earth and concrete dams, levees, deep foundations, and other projects.

V-8

Write for this Bulletin

VIBROFLOTATION FOUNDATION CO.
575 Sixth Ave. · Pittsburgh 19, Pa.
ATlantic 1-2500

WHERE SURE FOOTEDNESS COUNTS



Gary

STEEL GRATING MAKES WALKS SAFER

Sturdy, one-piece construction with tops of all bars flush provides open steel flooring and stairs for safe, easier walking. Gary Grating is furnished in a wide variety of neat appearing designs and sizes—and is tailor-made to fit your needs. For complete description and installation pictures on Gary Welded Grating, Stair Treads and Gary-Irving Decking, ask for Catalog E-45

FREE SAMPLE
We'll send this handy paper weight if you request it on your company stationery.

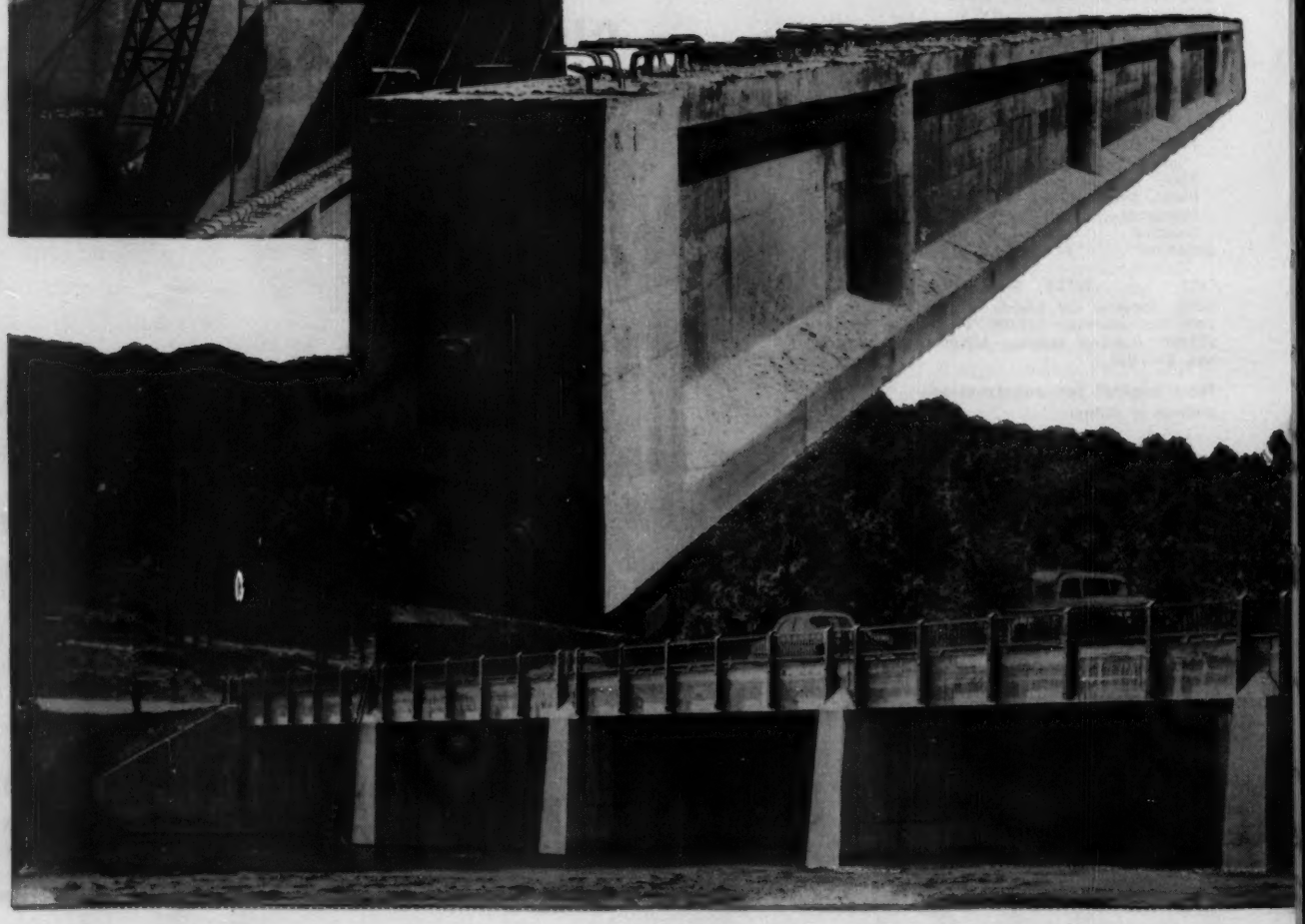
Standard Steel Spring Division
ROCKWELL SPRING AND AXLE CO.
4004 East Seventh Avenue • Gary, Indiana

To speed construction

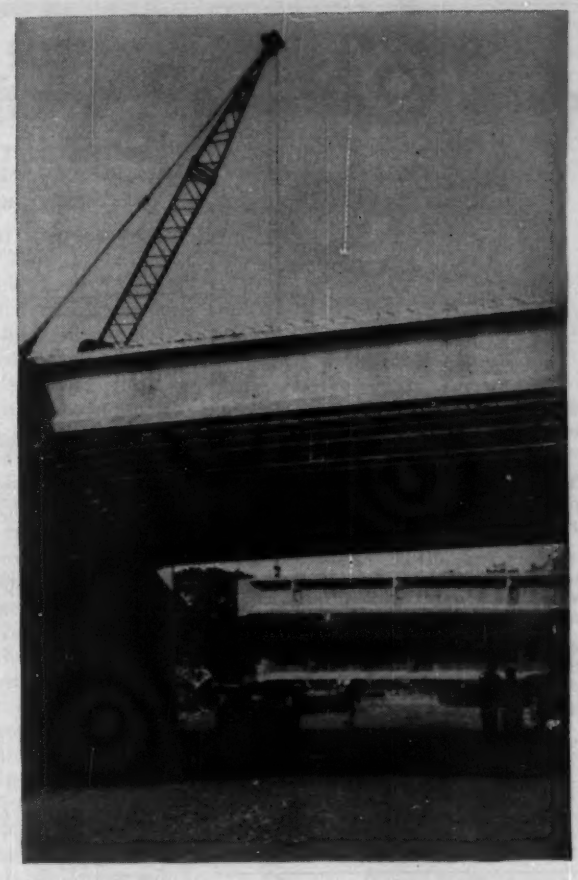
prestress with American

WHEREVER you use structural beams—in concrete buildings, bridges, or piers—better investigate the cost-cutting possibilities of prestressed concrete. Prestressed beams eliminate delays caused by bad weather; they eliminate the long wait for concrete to cure; they give you a *stronger* structure.

Prestressed beams are made at a factory, where weather can't interfere with production. They are poured, stressed, cured, *tested*, and then delivered to the job the day you need them. Just set the beams in place and grout them in—they're installed, and *you* can move on to the next stage of work without delay.



and cut costs your concrete wire and strand



Outstanding developments like American *Super-Tens* Wire and Type PS American Strand make the above advantages possible, because final stress allowable on these special wire products is approximately *five times* greater than that permissible with ordinary concrete reinforcement. This greater force binds the concrete together, prevents open cracks, gives the finished beam much better tensile strength with less reinforcing steel.

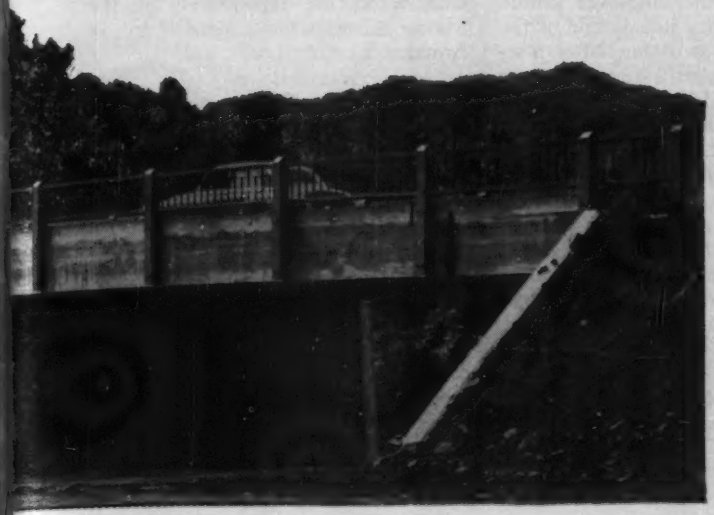
American Steel & Wire makes a high quality wire or strand for every successful method of prestressing concrete, and our engineers have extensive prestressing experience to draw from. For their help on your next job, just mail the coupon.

AMERICAN STEEL & WIRE DIVISION · UNITED STATES STEEL CORPORATION · GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN *Super-Tens* WIRE *and* TYPE PS AMERICAN STRAND

USS

UNITED STATES STEEL



American Steel & Wire
Room 842, Rockefeller Building
Cleveland 13, Ohio

I want all the facts about American *Super-Tens* Wire and Type PS Strand.

- ☐ Send me your free booklet, which contains technical data.
- ☐ Have your local representative call on me as soon as possible.

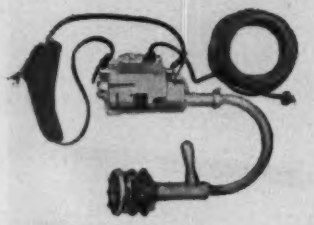
Name.....Title.....

Company.....

Address.....

City & State.....

"BERG"
CONCRETE SURFACER
MODEL A



"Berg" equipment is used extensively for surfacing and finishing applications on concrete construction.

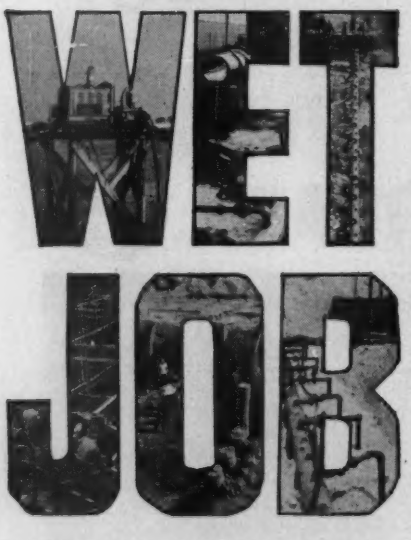
The many "BERG" Models available, permit exact selection for your particular application.

The distinctive "BERG" features give you the kind of results that are realized in better quality work, combined with lower costs.

"BERG" Heads and Attachments are interchangeable, thereby providing adaptability for vibrating, wire brushing, sanding and polishing applications.

THE CONCRETE SURFACING MACHINERY CO.
4667 SPRING GROVE AVE.
CINCINNATI 32, OHIO

IF IT'S A



PLAY SAFE! ASK FOR A DEWATERING ANALYSIS BY

GRIFFIN
WELLPOINT CORP.
881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

Legal Jurisdiction

New court ruling narrows area of federal supremacy

Last week the United States Supreme Court wrestled again with the delicate question of federal supremacy in labor relations. Its decision significantly qualifies the concepts previously announced in the court's disposition of the Anheuser-Busch building trades dispute (ENR Mar. 31, p. 22).

In a split decision, with Justice Frankfurter as spokesman for the majority, the court ruled that a federal court cannot oust a state court of jurisdiction it assumes in granting an injunction against picketing, although the dispute may be one within the NLRB's jurisdiction. Once entered in a state court, the litigation must be allowed to run its course despite the fact that on appeal, as in the Anheuser-Busch case, it may be found the state court had no jurisdiction.

The case had its inception in peaceful picketing of retail outlets of a clothing manufacturer to force its employes to join the union. Instead of going to the NLRB on an unfair labor practice charge, the employer claimed common-law restraint of trade and obtained an injunction against the picketing from an Ohio state court. Contending the dispute lay in federal jurisdiction, the union tried unsuccessfully to get a federal court to stop the state court proceedings.

The ruling was grounded on a federal law narrowly restricting the right of a federal court to halt action in a state court. In this case, the court found no exception to the general rule.

Three members of the court vigorously contended an exception existed. They felt that the employer should invoke the exclusive jurisdiction of the NLRB by filing an unfair labor practice charge. To permit him to seek an alternative remedy in a state court, by saying the federal system is powerless to prevent it, allows him "to circumvent the law which Congress enacted to resolve these disputes."

The majority was aware of the "tactics of evasion" permitted by its decision. It expressed the warning, however, that a deliberate attempt to evade federal procedure by resorting to state courts might result in an unfair labor charge.

Effect of the decision is to confuse rather than to aid a contractor or labor union in deciding whether a labor dispute should be taken to the NLRB or disposed of in a state court. The Anheuser-Busch case says to stay out of state courts if federal law prohibits or protects the activity in question, or reasonably appears to do so. Beyond this, says the court, the "penumbral region must remain between state and federal authority . . . until finally clarified by definitive rulings here or further legislation. . . ."

Allied Masonry Council Gets Union Cooperation

The AFL's International Union of Bricklayers, Masons and Plasterers has joined the major contractors and producers of the masonry industry to form the Allied Masonry Council. Unprecedented in scope, the new alliance represents 2,000 contractors, 480 producers and 141,000 craftsmen.

Principal function of the alliance is to exchange information on problems and improvements in the industry, including research findings on masonry products, faster and better work techniques, and successful applications of new methods of packaging and handling materials. Its aim is to serve the industry, architect, investor and the public, and to achieve "better buildings of better quality at lower cost."

To all these the union pledges its cooperation and support. It has been one of the leaders in apprenticeship training and in advanced training for its skilled craftsmen and through this activity it expects to make its biggest contribution to the council's efforts.

Producer organizations supporting the council are the Structural Clay Products Institute, whose chairman, Douglas Whitlock, is also chairman of the council; the Marble Institute of America; the Indiana Limestone Institute; and the Building Stone Institute. Contractors are represented by the Mason Contractors Association of America.

Philadelphia Carpenters Are Seeking High Stakes

One of the most impressive demands for wage increases comes from members of the carpenters union in Philadelphia. Their reported goal for commercial building is an hourly rate increase of 30 cents plus an additional 70 cents an hour in fringe benefits.

General feeling is that the most the carpenters can expect to get is 15 cents in cash and possibly 25 to 35 cents in fringe benefits.

A combination of factors has slowed commercial construction in the Phila-

delphia area and a number of carpenters are reportedly unemployed. Putting still another damper on the union's prospects is the fact that 75% of local homebuilding now occurs in non-union areas in which the union has made almost no progress in organization.

Home Builders Ask the NLRB For Right to Bargain Alone

Should homebuilders and commercial builders be covered by separate labor contracts or by a single one? That's the question the Home Builders Association of Greater Cleveland has laid before the NLRB. In a petition filed with the board, it has asked for the right to bargain directly with the 2,500 carpenters employed by its members.

Dissatisfaction with the present system has been festering for a long time. Traditionally the homebuilders have had to live with a labor contract negotiated with the carpenters by the Building Trades Employers Association. The homebuilders contend the BTEA is dominated by commercial-industrial builders whose problems are too different from those of residential builders to warrant a common labor contract for both groups. They want to negotiate independently and get a contract of their own.

So far, the carpenters have shown no disposition to go along with the homebuilders.

Labor Briefs

• **Plumbers lose**—A labor dispute between plumbers and ironworkers at the Naval Air Station near Brunswick, Ga., has been resolved by the NLRB in favor of the ironworkers. Board ruling is that the plumbers union cannot force or require Cartier Corp. or Turner Transfer, Inc. to assign rigging work on equipment used in construction to plumbers.

• **Jurisdictional violence**—Use of new building materials and a thinner line between the end of structural work and the beginning of carpentry has increased the friction between carpenters and ironworkers employed on construction of a powerhouse addition near Hammond, Ind. The carpenters' business agent was beaten up and says it was the work of the business agents of the ironworkers local.

• **Wage boost**—A new one-year contract granting a 5-cent wage increase, has been signed by the Tulsa, Okla., AGC and the carpenters, laborers, operating engineers and teamsters unions. Amount initially demanded was 10 cents.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

Bids: April 19, 1955

Demolition of a Steel Highway Bridge

Delaware River Joint Toll Bridge Commission
Administration Building, Morrisville, Pa.
Notice to Contractors
Sealed proposals for "Demolition" of a steel highway bridge supported by stone masonry piers over the Delaware River between Pa. and N. J. located as follows:
Contract No. 209—Delaware—Upper Mount Bethel bridge between Delaware, Warren County, N. J. and Upper Mount Bethel township, Northampton County, Pa., approximately two miles downstream from the recently completed highway bridge between Portland, Pa. and Columbia, N. J.
Will be received by the Delaware River Joint Toll Bridge Commission at its office, Administration Building, Morrisville, Pa. until 11:00 (11 A.M.) Eastern Standard Time on the 19th day of April 1955, at which time and place all bids will be publicly opened and read aloud.
"Demolition" of bridge includes the following work:
1. Demolition and disposal of the five (5) spands of superstructure including steel trusses, steel bracing, steel floor system, Amiesite wearing surface, concrete deck, railings, and incidentals.
Structural steel 750 plus or minus tons.
Concrete deck 315 plus or minus C. Y.
Amiesite wearing surface 25 plus or minus C. Y. Timber shoring 15 plus or minus M. B. M.
2. Demolition and disposal of the four (4) piers and the riprap around them, down to the elevation of the surrounding river bottom. Substructure—stone masonry, grouted. Riprap, and loose stone timber cribbing, and so forth (4 piers) 6,300 plus or minus C. Y.
All materials removed shall become the property of the contractor and are to be disposed of as required.
After April 4th, 1955, instructions to bidders, form of proposal, form of contract, form of performance bond, plans and specifications may be examined at the offices of the commission, Morrisville, Pa. or Administration Building, Phillipsburgh, N. J., and copies thereof obtained upon payment of Five dollars ($5.00) for each set which amount is not returnable.
The proposal must be accompanied by a certified check in the amount of not less than five (5) percent of the amount of the proposal.
All checks should be made payable to the Delaware River Joint Toll Bridge Commission, which amounts shall be forfeited as liquidated damages if the bidder or bidders fail, within ten (10) consecutive calendar days after written notice that the bidder or bidders have been awarded the contract, to enter into a written contract with the Commission in accordance with the accepted bid, and to give a performance bond satisfactory to the Commission equal to one-hundred (100) percent of the amount of the contract.
The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work, and to the bidder whose proposal is deemed by the Commission to be the most advantageous.
Delaware River Joint Toll Bridge Commission by Alexander R. Miller, Chairman of Commission
Dated: April 4, 1955

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

Bids: April 26, 1955

State of New Jersey State Highway Department Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:
REMOVAL OF THE OLD PORT STREET BRIDGE, NEWARK

Removal of the Old Port Street Bridge over the tracks of the Central Railroad of New Jersey and the Pennsylvania Railroad in the City of Newark, Essex County.

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, April 26, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: April 27, 1955

Proposal No. 583

THE PORT OF NEW YORK AUTHORITY
179 ALUMINUM LAMP STANDARDS
GEORGE WASHINGTON BRIDGE

Sealed proposals for the supplying of 179 aluminum lamp standards for the George Washington Bridge will be received in the office of the Director of Purchase of The Port of New York Authority, Room 900, 111 8th Ave., New York 11, until 11:00 A.M., Wednesday, April 27, 1955, at which time and place proposals will be opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
HOWARD S. CULLMAN, CHAIRMAN

OFFICIAL PROPOSALS

Bids: May 5, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 5th day of May 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, N. F. Ronan, Acting District Engineer, 353 Broadway, Albany, N. Y.						
Albany Greene Schenectady	C.T. 55-5 M.T. 55-3	New York State Thruway—Catskill Section—Subs. 3-3A-4-5-6-7 (Ulster-Greene Co. Line to Western Ave.) & Mohawk Section—Sub. 1 & 2 (Western Ave. to Schenectady-Montgomery Co. Line)	....	Furnish and Install 80,500 L.F. of Beam Type Guide Railing	$14,000 Plans $10	$255,000
Greene	C.T. 55-6	New York State Thruway—Catskill Section—Sub. 6 (Coxsackie Gas Station-Restaurant Site) Type B	....	Grading, Paving & Misc. Work	$9,000 Plans $10	167,000
Saratoga	FARC 55-8	Wait Corners-Lapes Corners, S.H. 1523 Lapes Corners-Clifton Park, S.H. 8137 Proj. 8-202(2)	2.71	Asp. Conc., Opt.	$15,000 Plans $10	271,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Herkimer	M.T. 55-4	New York State Thruway—Mohawk Section—Sub. 10A (East Schuyler Gas Station-Restaurant Site) Type B	....	Grading, Paving & Misc. Work	$9,500 Plans $10	170,000
Herkimer	M.T. 55-5	New York State Thruway—Mohawk Section—Sub. 11A & 12A (Indian Castle Gas Station-Restaurant Site) Types A & C	....	Grading, Paving & Misc. Work	$30,000 Plans $10	545,000
Montgomery	M.T. 55-6	New York State Thruway—Mohawk Section—Sub. 15 (South Amsterdam Gas Station-Restaurant Site) Type B	....	Grading, Paving & Misc. Work	$21,000 Plans $10	378,000
Montgomery	R.C. 55-18 FARC 55-19	Fort Plain-Canajoharie—Canajoharie-Fultonville, Pt. 1, S.H. 8348 Canajoharie-Fultonville, Pt. 2, S.H. 8371 Canajoharie Village; Erie Blvd. and Main St. Pt. 2, S.H. 1866A Canajoharie Village: Erie Blvd. and MainSt., S.H. 1866 Proj. F-467(5)	5.79	Asp. Conc., Opt.	$23,000 Plans $10	399,000
DISTRICT No. 6, J. H. Thomas, District Engineer, State Office Bldg., Hornell, N. Y.						
Chemung	FARC 55-11	Big Flats-Fitch Bridge, S.H. 8411 Fitch Bridge-Elmira, S.H. 946 Proj. F-596(3)	6.25	Asp. Conc., Opt.	$40,000 Plans $15	722,000
Schuyler	FARC 55-12	Horseheads-Montour Falls, S.H. 5208 Montour Falls, S.H. 5160 Proj. F-479(13)	1.25	Asp. Conc., Opt. = 1.24 Mi Misc. Work = 0.01 Mi.	$8,000 Plans $10	144,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
Saint Lawrence	FARC 55-14	Richville-Dekalb, Pt. 2, S.H. 9236 Proj. F-428(6)	3.00	Asp. Conc., Opt.	$23,000 Plans $15	416,000
DISTRICT No. 8, J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Orange, Rockland, Ulster	C.T. 55-4	New York State Thruway—Catskill Section—Sub. 3-4-5-6 & 7 (Suffern to Kingston)	....	Furnish & Install 120,315 L.F. of Beam Type Guide Railing	$22,000 Plans $10	400,000 00
Putnam & Westchester	FARC 55-22	Peekskill-Fishkill Pts. 1 & 2, S.H. 5147-5387 Proj. F-394(13)	4.01	Asp. Conc., Opt.	$25,000 Plans $10	421,00
DISTRICT No. 9, F. W. Donovan, District Engineer, 71 Frederick Street, Binghamton 21F, N. Y.						
Broome & Chenango	FARC 55-16	Barker S.H. 375; Chenango Forks-North Fenton, S.H. 1241; Port Crane-North Fenton, S.H. 963; North Fenton-Belden Pt. 1, S.H. 9036; North Fenton-Belden, Pt. 2, S.H. 8427 Proj. 8-440(1)	11.96	Asp. Conc., Opt	$35,000 Plans $15	623,000
DISTRICT No. 10, M. E. Goul, District Engineer, Montauk Highway at Lttle East Neck Rd., Babylon L. I., N. Y.						
Suffolk	FARC 55-24	Port Jefferson-Riverhead Pt. 1 S.H. 8094 Port Jefferson-Riverhead, Pt. 2B S.H. 8111 Proj. 8-430(2)	6.13	Asp. Conc. Opt. = 605 Mi Misc. Work = 0.08 Mi.	$38,000 Plans $10	658,000
Suffolk	FARC 55-25	Mattituck-Greenport, Pts. 1 & 3 S.H. 8229 Proj. F-348(6)	1.91	Asp. Conc., Opt.	$22,000 Plans $15	403,000
Suffolk	FARC 55-26	Bayshore-Brookhaven Town Line, S.H. 5301, Proj. 8-442(1)	0.28	Asp. Conc., Opt. = 0.26 Mi. Misc. Work = 0.02 Mi.	$6,000 Plans $10	103,000
Suffolk	FARC 55-27	Bridgehamton-Devon Pt. 2, S.H. 1524 Proj. F-559(9)	2.36	Asp. Conc., Opt. = 2.24 Mi. Misc. Work = 0.02 Mi.	$20,000 Plans $10	397,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

John W. Johnson
SUPT. OF PUBLIC WORKS

Bids: May 3, 1955

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF GENERATOR AIR CIRCUIT BREAKERS
SPECIFICATION NO. PA-4-14005
ST. LAWRENCE CONTRACT NO. P12

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture, and furnishing of sixteen (16) generator air circuit breakers and appurtenances, and the delivery thereof f.o.b. destination, until 10:30 A.M. Eastern Standard Time on the 3rd day of May, 1955 at the Authority's office, 270 Broadway, hearing room "C" on the sixth floor, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be entertained for the generator air circuit breakers, appurtenances and services in accordance with the bidding schedule. Erection at the site of installation will be done by Others but services of an erecting engineer shall be provided by the manufacturer if and when required. Delivery will be required in groups of 4 air circuit breakers every six months starting September 1, 1957.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount not less than 10 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Read the Official Proposal Columns of
ENGINEERING NEWS-RECORD
This Week and Every Week

SEARCHLIGHT SECTION

OFFICIAL PROPOSALS

Bids: April 20, 1955

New Jersey Turnpike Authority

CONTRACT NO. PE-5

Proposals are invited for Contract No. PE-5 which involves the construction of roadway pavements, shoulders, guard rail, right-of-way fencing, pavement markings, side-of-road delineators, topsoiling and seeding, and other incidental work, from the Delaware River to the main stem of the existing New Jersey Turnpike, in Burlington County, New Jersey, all in connection with the construction of the Pennsylvania Extension of the New Jersey Turnpike and the widening of a portion of the existing New Jersey Turnpike.

The principal items of work include:

Roadway Excavation	18,000 Cu. Yds.
Borrow Excavation	11,000 Cu. Yds.
Asphaltic Concrete Pavement	320,000 Sq. Yds.
Shoulders	160,000 Sq. Yds.
Relocation of Existing Guard Rail	5,500 Lin. Ft.
New Guard Rail	38,000 Lin. Ft.
Right-of-Way Fencing	75,000 Lin. Ft.
New Delineators	600 Units
Special Traffic Zone Paint (Pavement Markings)	1,060 Gals.
Glass Spheres (Pavement Markings)	6,360 Lbs.
Topsoiling	70,000 Sq. Yds.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Standard Time on the morning of April 20, 1955, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after April 7, 1955, at the office of the Authority and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, New York. Contract documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

April 5, 1955

Bids: April 28, 1955

Contract NA-310.001

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
REHABILITATION OF BUILDING NO. 1
FOR AIR MAIL FIELD POST OFFICE

Sealed proposals for performing alterations in a portion of Building No. 1 for an Air Mail Field Post Office at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Thursday, April 28, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, April 14, 1955

OFFICIAL PROPOSALS

Bids: May 3, 1955

Furnishing and Erecting Spillway Gates

NOTICE TO BIDDERS

Sealed proposals for furnishing and erecting spillway gates for the Boonton Dam will be received by the Board of Commissioners in the Assembly Chamber of the City Hall, Jersey City, N. J., at 10:30 AM. (DST) on May 3rd 1955, at which place and time they will be publicly opened and read.

The work consists of the furnishing and erection of approximately 300 feet of Bascule Type Gates across the Spillway of the Boonton Dam with appurtenances, operating mechanism and buildings. The dam is located on the Rockaway River on the southerly outskirts of the Town of Boonton and is owned by the City of Jersey City.

Separate proposals will be received on the three divisions of the work as follows:

Contract A. Bascule Type Gates for Boonton Dam.
Contract B. Structural Steel Suspension Walk.
Contract C. Electrical Work.

Each bid must be accompanied by a certified check in the amount of five (5%) percent of the bid, and in addition a Surety Consent, all in accordance with the Instructions to Bidders.

Bidders shall be required to furnish a bond upon the execution of the contract, bond to be bond of a surety company authorized to do business in the State of New Jersey, in an amount equal to the full amount of the contract.

Copies of plans, proposal forms, specifications and forms of bond and contract can be seen at the office of Clyde Potts Associates, Consulting Engineers, 30 Church Street, New York City, or may be obtained by prospective bidders upon depositing Twenty Dollars ($20), which sum will be refunded to Contractors who submit bids, on return of the specifications within ten (10) days after the contract has been awarded, if same are in good condition when returned.

The Board of Commissioners reserve the right to reject any and all proposals.

James A. Tumulty, Jr.
City Clerk

Dated March 15th 1955

Bids: May 3, 1955

Filter Plant Improvements

OFFICE OF THE CITY CLERK
CITY HALL
PLATTSBURGH, NEW YORK
NOTICE TO CONTRACTORS

NOTICE is hereby given that sealed bids or proposals for the construction of FILTER PLANT IMPROVEMENTS will be received by the City of Plattsburgh, Clinton County, New York, at the office of the City Clerk until 2:00 o'clock P. M., Eastern Daylight Saving Time on the 3rd day of May, 1955, at which time they will be publicly opened and read aloud. Proposal must be enclosed in a sealed envelope, addressed to the City Clerk, City Hall, Plattsburgh, New York, and have plainly marked thereon in bold letters "Proposal for Filter Plant Improvements."

The work to be performed comprises structural alterations and additions to an existing rapid sand gravity filter plant to increase its rated capacity from approximately 4 M.G.D., to 6 M.G.D., including:—Structural alterations and additions to the existing filters and settling basins; construction of an extension to the existing filter building; construction of an additional settling basin; the furnishing and installing of new flocculation and filter plant mechanical equipment; the making of piping alterations and additions; furnishing and installing two Venturi meters in existing supply lines; plumbing, heating and electrical work; together with miscellaneous appurtenant work as required.

Plans and specifications may be examined at the office of the City Clerk, in Plattsburgh, or at the office of the Consulting Engineer, Benjamin L. Smith & Associates, 11 North Pearl Street, Albany, New York, and copies thereof may be obtained upon payment of $20.00 for each set.

Proposals must be submitted on the blank forms provided and in the manner designated therein. Each proposal must be accompanied by a certified check or a bid bond in an amount not less than 5% of the total amount of the bid. The successful bidder will be required to furnish a bond of indemnity in the full amount of his bid, for the full and faithful performance of his work and the payment of all labor and materialmen.

The contract must be completed in its entirety within 200 calendar days of the notification to the Contractor to proceed with the work.

The City of Plattsburgh reserves the right to consider all bids for a period of forty-five (45) days after the opening thereof, before awarding any contract and the right is reserved to waive any informalities in, to reject any or all bids, and to select the bid, the acceptance of which will, in its judgment, best secure the efficient performance of the work.

CITY OF PLATTSBURGH, NEW YORK
(Sgd) George E. Miller
City Clerk

APPROVED:
(Sgd) John J. Tyrell
Mayor
(Sgd) Allen M. Light
Corporation Counsel

OFFICIAL PROPOSALS

Bids: April 26, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

RT. 25 (1927) RT. U.S. 1—BUSINESS (1953), SEC. 40

Route 25 (1927) Route U.S. 1—Business (1953), Section 40, from Jersey Avenue to Tonnele Avenue Circle; Resurfacing, Jersey City, Hudson County. Length 1.346 miles. The principal items of work are

Roadway Items

Estimated:

41,995	sq. yds. Removal Granite Block Pavement
9,000	tons Pavement Type MA-BC-2
3,600	cu. yds. Conc. Pavement Surface, Reinf., Var. Thickness
146,000	lbs. Reinforcement Steel
931	lin. ft. 9"x8" Plain Concrete Vertical Curb

Bridge Items

8,060	lin. ft. Balustrade Resurfaced with Pneumatically Applied Mortar
1,000	bags Cement used in Pneumatically Applied Mortar
60,000	sq. ft. Concrete Encasement Removed
1,076	lin. ft. Concrete Header

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, April 26, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accomapnied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and sealed special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

OFFICIAL PROPOSALS

Bids: May 10, 1955

City of St. Cloud, Minnesota

9 M.G. WATER TREATMENT PLANT
MARCH, 1955
ADVERTISEMENT FOR BIDS

The City of St. Cloud, Minnesota will receive sealed proposals for the construction of certain Water Supply Improvements until 2:00 P.M. (C.S.T.) on the 10th day of May, 1955, at the office of the City Clerk, City Hall, St. Cloud, Minnesota. All proposals received will be publicly opened and read aloud in the Council Chambers at said City Hall at 2:00 P.M. C.S.T. on May 10, 1955.

The Contract Documents including plans and specifications, are on file and available for inspection at the office of the City Clerk. Copies of Documents, including plans and specifications, required for review or bidding purposes may be obtained only from the City Clerk by depositing $50.00 for each set of Documents so obtained.

The full amount of the deposit for one set of Documents and one-half of the deposit for any additional sets of Documents will be refunded to each Bidder who submits a formal proposal to the City, and who also returns the plans (and specifications on additional sets) in good condition to the City Clerk within ten (10) days after his bid security has been returned to him.

A certified check or bank draft drawn on a solvent bank, or bidder's bond, payable without condition to the City of St. Cloud, Minnesota, in an amount not less than five per cent (5%) of the bid, shall be submitted with each proposal, as a guarantee that if the proposal is accepted by the City of St. Cloud, a contract will be entered into and the performance of the contract properly secured.

No bid shall be withdrawn after the opening of proposals without the consent of the City for a period of thirty (30) days after the scheduled time of closing bids.

The City of St. Cloud reserves the right to reject any or all proposals and to waive any informalities in bidding, or to accept any proposal which appears to the City Council to be in the best interests of the City.

The successful Bidder will be required to furnish a satisfactory Performance Bond in the sum of the full amount of the Contract. In general, the Improvements on which proposals are solicited will require the following construction under one General Contract:

The furnishing of all equipment, materials, and labor for the construction of a new River intake, Raw Water Pumping Station, and a Water Filtration and Softening Plant adjacent to the Mississippi River in Hester Park in the City of St. Cloud, Minnesota. The new Water Filtration and Softening Plant will be of a nominal capacity of 9.0 million gallons per day, consisting of reinforced concrete clear well, rapid sand filters, settling and mixing basins, chemical feeders and storage facilities, pumping equipment, all necessary piping, valves, and fittings, plumbing, heating and ventilation, dehumidification and electrical, all outside station piping, plant site grading and landscaping.

Plans and specifications for this project were prepared by Consoer, Townsend and Associates, Consulting Engineers, 351 East Ohio Street, Chicago 11, Illinois.

Payment on this Contract will be made from the proceeds of the sale of General Obligation Bonds of the City of St. Cloud, Minnesota that have been authorized.

Dated at St. Cloud, Minnesota
This 31st day of March, 1955.

R. W. TEAGUE
CITY ENGINEER

Bids: April 26, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 17, SECTION 9-C—PLANTING

Route 17, Section 9-C, from New York State Line to Ramapo River, Planting, Mahwah Township, Bergen County. Length 1.142 miles. The principal items of work are:

Estimated:
- 65 Trees—Deciduous
- 27 Trees—Evergreen
- 65 Trees—Small and Flowering
- 545 Shrubs
- 10,100 Vines
- 300 cu. yds. Topsoil

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, April 26, 1955, at NINE o'clock (9:00A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The recipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at above place on or before the hour named. Copies of the standard proposal forms and sealed special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

U. S. Government

INVITATION FOR BIDS (CONSTRUCTION CONTRACT). DATE, April 6, 1955. NAME AND LOCATION OF PROJECT, Project No. 21 on St. Croix, Virgin Islands. As noted herein for each school. DEPARTMENT OR AGENCY, Government of the Virgin Islands. BY (Issuing office) Public Works Commission, Government of the Virgin Islands, Charlotte Amalie, St. Thomas, Virgin Islands. Sealed bids in single copy for furnishing all labor, equipment, and materials and performing all work for the project described herein will be received until 3:00 p.m., Atlantic Standard Time in the office of the Public Works Commissioner, Charlotte Amalie, St. Thomas, Virgin Islands, and then publicly opened. Information regarding bidding material, bid guarantee, and bonds, plans and specifications and other contract documents are open for public inspection at the office of the Public Works Commissioner, Charlotte Amalie, St. Thomas, Virgin Islands; M. A. Dyer Company, 24 School Street, Boston, Massachusetts; A.G.C. Office, 1113 Congress Building, Miami, Florida; Builders Exchange, 46 Northeast 6th Street, Miami, Florida; Urban Renewal Administration, 2nd Floor, del Valte Building, Santurce 17, Puerto Rico; and F. W. Dodge Corp., 119 West 40th Street, New York 18, N. Y. Plans and specifications may be procured from the office of M. A. Dyer Company (Architects-Engineers) at 24 School Street, Boston, Massachusetts, upon deposit of the following: Frederiksted Elementary Junior High School, $50.00; Kings Hill Elementary School, $50.00; Both Schools together, $75.00. Deposit shall be only by certified check payable to M. A. Dyer Company which will be refunded to bona fide bidders upon the return of plans and specifications in good condition within forty-five (45) calendar days from the date of bid opening. A bona fide bidder includes any person who submits a bid for a general contract, but does not include a person who submits a quotation to the general contract bidders. To persons who procure plans and specifications upon payment of the above stated amounts and who do not submit a bid, seventy-five (75) per cent of the deposit amount will be refunded upon the return thereof in good condition within forty-five (45) calendar days from the date of bid opening. No refund will be made for return after that time. After the bid opening additional copies of plans and specifications may be obtained from the Architect-Engineer at commercial rates, plus handling and mailing charges. Bonds, etc. Each bid must be accompanied by a satisfactory bid guaranty in an amount not less than 5 per cent of the total bid. The successful bidder will be required to furnish a performance bond and payment bond, each in the amount of 100 per cent of the contract price. No bid may be withdrawn until thirty (30) calendar days after the scheduled closing time for the receipt of bids. The Government of the Virgin Islands reserves the right to award a contract for any one or both schools on the basis of the basic bid for each school or any combination of schools and/or sections or by the acceptance of any or all of the alternates, whichever course is in the best interests of the Government of the Virgin Islands. Description of work. The construction includes: St. Croix, Virgin Islands, Project No. 21—1. Frederiksted Elementary Junior High School. 2. Kings Hill Elementary School.

U. S. Government

INVITATION FOR BIDS (CONSTRUCTION CONTRACT). DATE, April 6, 1955. NAME AND LOCATION OF PROJECT: Project No. 6 on St. Thomas, Virgin Islands. As noted herein for Roadway. DEPARTMENT OR AGENCY, Government of the Virgin Islands. BY (Issuing office) Public Works Commissioner, Government of the Virgin Islands, Charlotte Amalie, St. Thomas, Virgin Islands. Sealed bids in single copy for furnishing all labor, equipment, and materials and performing all work for the project described herein will be received until 3:00 p.m., Atlantic Standard Time, May 18, 1955, in the office of the Public Works Commissioner, Charlotte Amalie, St. Thomas, Virgin Islands, and then publicly opened. Information regarding bidding material, bid guarantee, and bonds, plans and specifications and other contract documents are open for public inspection at the office of the Public Works Commissioner, Charlotte Amalie, St. Thomas, Virgin Islands; R. L. Kenan & Associates, Bell Building, Montgomery, Alabama; A.G.C. Office, 1113 Congress Building, Miami, Florida; Builders Exchange, 46 Northeast 6th Street, Miami, Florida; Urban Renewal Administration, 2nd Floor, del Valte Building, Santurce 17, Puerto Rico; and F. W. Dodge Corp., 119 West 40th Street, New York 18, N. Y. Plans and specifications may be procured from the office of R. L. Kenan & Associates at the Bell Building, Montgomery, Alabama, upon deposit of the following: Proposed Waterfront Roadway, $20.00. Deposit shall be only by certified check payable to R. L. Kenan & Associates which will be refunded to bona fide bidders upon the return of plans and specifications in good condition within forty-five (45) calendar days from the date of bid opening. A bona fide bidder includes any person who submits a bid for a general contract, but does not include a person who submits a quotation to the general contract bidders. To persons who procure plans and specifications upon payment of the above stated amount and who do not submit a bid, seventy-five (75) per cent of the deposit amount will be refunded upon the return thereof in good condition within forty-five (45) calendar days from the date of bid opening. No refund will be made for return after that time. After the bid opening additional copies of plans and specifications may be obtained from R. L. Kenan & Associates, at commercial rates, plus handling and mailing charges. Bonds, etc. Each bid must be accompanied by a satisfactory bid guaranty in an amount not less than 5 per cent of the total bid. The successful bidder will be required to furnish a performance bond and payment bond, each in the amount of 100 per cent of the contract price. No bid may be withdrawn until thirty (30) calendar days after the scheduled closing time for the receipt of bids. The Government of the Virgin Islands reserves the right to award a contract for any or all items of any bid, whichever course is in the best interests of the Government of the Virgin Islands. Description of work: The construction of a roadway approximately 7,830 feet long along the seawall in Charlotte Amalie Harbor which includes: 13,500 C. Y. Common Excavation, 4,700 C. Y. Solid Rock Excavation, 1,434 L. F. Culvert Pipe, 38 Ea. Roadway Inlets, 12,900 L. F. Standard Combination Curb and Gutter, 280 C. Y. Rubble Masonry Curb Wall, 2,460 S. Y. Grouted Riprap, 6,330 S. Y. Concrete Sidewalk, 25,700 S. Y. Dry Macadam Base Course, 25,700 S. Y. 2 inch Bituminous Surface, 4 Ea. Comfort Stations (toilets), Roadway Lighting System. With Alternates: 25,700 S. Y. Stabilizing Subgrade, 25,700 S. Y. Concrete Paving.

OFFICIAL PROPOSALS

Bids: May 10, 1955

Contract HP-120.009

THE PORT OF NEW YORK AUTHORITY
HOBOKEN-PORT AUTHORITY PIERS
HEADHOUSE—AREA 4
ALTERATIONS TO SECOND FLOOR

Sealed proposals for performing alterations to the second floor of the Headhouse (Area 4) at the Hoboken-Port Authority Piers, Hoboken, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, May 10, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, April 14, 1955

Bids: May 4, 1955

Indiana Toll Road Commission
309 W. Washington Street
Old Trails Building
Indianapolis, Indiana

NOTICE TO BIDDERS

Contract No. M-1, M-2 and M-3
Contract No. M-4 and M-5
Contract No. M-1, M-2, M-3, M-4 and M-5

Sealed proposals will be received at or before 10:00 A.M., Central Standard Time, May 4, 1955, for the performance of each of the contracts enumerated above.

Contract No. M-1, M-2 and M-3

The complete construction (including site improvements, plumbing, electrical, heating and ventilating work) of Maintenance Buildings and related work located approximately as follows:

M-1 Located about seven miles west of Chesterton, Indiana, the site being on the northwest corner of the overpass intersection of Willow Creek Road with the Toll Road (Toll Road Station 1444-1451), in Porter County, Indiana.

M-2 Located about one-half mile south of U. S. Route 20 on Fail Road, the site being on the southwest corner of the overpass intersection of Fail Road with the Toll Road (Toll Road Stations 2949-2954), in LaPorte County, Indiana.

M-3 Locateu about two miles north of U. S. Route 20 on Ash Road, the site being on the southwest corner of the overpass intersection of Ash Road with the Toll Road (Toll Road Stations 4796-4800), in St. Joseph County, Indiana.

Contract No. M-4 and M-5

The complete construction (including site improvements, plumbing, electrical, heating and ventilating work) of Maintenance Buildings and related work located approximately as follows:

M-4 Located about three quarters of a mile east of Scott, Indiana, the site being on the southwest corner of the intersection of Olney Road at its overpass intersection with the Toll Road (Toll Road Stations 6244-6251), in LaGrange County, Indiana.

M-5 Located about three and one-half miles east of Orland, Indiana, north of Indiana Route 120 about one mile on a County Road, the site being on the southwest corner of said County Road at its underpass intersection with the Toll Road (Toll Road Stations 7472-7477), in Steuben County, Indiana.

The work covered by Contract M-1, M-2, M-3, M-4 and M-5 covering a combination of two Construction Contracts, is the construction as above described for the individual Construction Contracts, taken together.

Copies of the Plans, Standard Specifications, Supplemental Specifications and Proposal Forms for said Contracts are available for public inspection or purchase at the office of the Chief Engineer, Indiana Toll Road Commisison, 309 W. Washington Street, Indianapolis, Indiana. These documents may be purchased from said Chief Engineer for the following sums, per set, which sums are non-returnable:

Standard Specifications for the Indiana East-West Toll Road.....$ 5.00
Supplemental Specifications .....$ 5.00
Plans and Proposal Form for Contract M-1, M-2 and M-3.....$30.00
Plans and Proposal Form for Contract M-4 and M-5.....$20.00

All Proposals must be on the form prescribed by the Commission and must comply with the terms and conditions set forth in the Contract Documents.

Contractor's statement for qualification on the forms supplied by the Commission will be required from all Bidders.

Each Proposal must be accompanied by a Proposal Guaranty in the amount of five (5%) per cent of the total price bid per Construction Contract covered by the Contract. If the Bidder shall tender bids for two or more Contracts which include the same Construction Contract, the Construction Contract thus duplicated in the bidding need be counted only once in determining the total amount of the Proposal Guaranty. The Proposal Guaranty shall be in the form of an acceptable surety bond or a certified check on a solvent bank.

If the Bidder is an out of state corporation, he shall be required to furnish a certificate from the Secretary of State of Indiana as evidence that the corporation has complied with the Indiana Foreign Corporation Statutes, and that the corporation is authorized to transact business in the State of Indiana.

All bids must be received at or before 10:00 A.M., Central Standard Time, May 4, 1955, in the offices of the Indiana Toll Road Commission, 309 W. Washington Street, Indianapolis, Indiana. At said hour, the bid box will be publicly opened and the bids read.

The award of any of the above-enumerated Contracts, if any award be made, will be to the Bidder or Bidders whose Proposal or combination of Proposals is lowest and best for the performance of the work, taken as a whole, and complies with all the prescribed requirements. The Commission reserves the right to reject any or all Proposals and to waive technicalities.

INDIANA TOLL ROAD COMMISSION
Dr. Dillon Geiger
Chairman

Charles W. Keating
Secretary-Treasurer

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4394) will be received at Ephrata, Washington until May 18, 1955, for furnishing labor and materials for earthwork, lateral lining, and structures, East Part—Block 89, Laterals, Sublaterals, Wasteways, and Drains, West Canal Laterals, Columbia Basin Project, Washington. Location near Ephrata, Washington, in Grant County. Principal items are 408,000 cu. yds. excavation; 147,000 sq. yds. trimming and preparing foundations for concrete lining; 970 cu. yds. concrete in structures; 8,260 cu. yds. concrete in lining; 25,000 lin. ft. furnishing and laying concrete culvert and concrete pressure pipe 15- to 48-inch diameter; and other work. The work is divided into two schedules. Completion time 545 days. For particulars, address Bureau of Reclamation, Ephrata, Washington; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4396) will be received at Superior, Nebraska, until 10 a.m. May 24, 1955, for furnishing labor and materials for earthwork, structures, and surfacing for County Road Improvement, Bostwick division, Missouri River Basin Project, Nebraska-Kansas. Location in vicinity of Lovewell Dam, 3 miles northwest of Lovewell, Kansas, in Jewell County. Principal items are earthwork, culverts, and grading for approximately 6½ miles of county road improvement; construction of steel and concrete bridge over John's Creek; relocation of approximately 13½ miles of fence; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, P. O. Box 150, Superior, Nebraska; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: April 26, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

RT. 42, NORTH-SOUTH FREEWAY, SECS. 10C & 11C
PARTIAL DEMOLITION OF BUILDINGS

Route 42, North-South Freeway, Sections 10C and 11C, between Washington Street and Ferry Avenue; Partial Demolition of Buildings, City of Camden, Camden County. The principal items of work are: Estimated:

8 Demolition of Brick Buildings
9 Demolition of Frame Buildings
1 Demolition of Concrete Block Building
1 Demolition of Concrete Block Stable
2,830 cu. yds. Borrow Excavation (Cellar Fill)

Bids for the above will be received at the office of the State Highway Department in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, April 26, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Depjartment, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.000 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and sealed special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal Advertising is $1.80 per line (or fraction) per insertion.

COPY RECEIVED: up to 10:30 A.M. Friday for issue out following Thursday subject to space open for last minute ads.

SEND COPY: to Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)

$1.80 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.80 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. for April 21st issue closing April 18th.

DESIGN ENGINEERS

Permanent Openings Available at Our Cleveland, Ohio Offices for qualified DESIGNERS experienced in:

. . . . STRUCTURAL STEEL
. . . . REINFORCED CONCRETE
. . . . PRESSURE VESSEL
. . . . PROCESS PIPING
. . . . PROCESS HEATERS
. . . . EQUIPMENT SPECIFICATIONS
. . . . INSTRUMENT SPECIFICATIONS
. . . . HEAVY MACHINES

- - - - Top Hourly Rates
- - - - Bonus Participation
- - - - Moving Expense Allowance

WRITE—giving complete details of experience, education, age, etc.—to:

E. A. Kolner,

ARTHUR G. McKEE & COMPANY
2300 Chester Ave. Cleveland 1, Ohio

CIVIL ENGINEERS

Overseas Positions

Engineers with extensive highway experience in all phases of design and also construction supervision required for highly responsible overseas positions. Near East location. Attractive salary. Send completely detailed resume of experience and references.

P-6119, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

ESTIMATOR AND field superintendent for sewer construction. Midwest, salary and percentage of profits. Give resume of experience and salary expected in first letter. P-5982, Engineering News-Record.

PITTSBURGH STEEL Warehouser has opening for man experienced in pricing and selling hot and cold rolled sheets: experience in shear line operation, shearing blanks, etc. a must. P-5810, Engineering News-Record.

GUNITE ENGINEER for estimating and project coordination as assistant to President of Nationally known Gunite Company, Philadelphia area. P-6085, Engineering News-Record.

YOUNG AGGRESSIVE engineer with field experience in asphaltic concrete and Portland cement concrete paving, for estimating, extensive travel, remuneration commensurate with experience & ability. P-6109, Engineering News-Record.

WATER WORKS Sup't-Operator for growing Eastern Penna. Municipal Water Co. Under 40 years, practical and/or educational experience required. Excellent opportunity; security for the right man. Give full details. Write P-6110, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

INSTRUCTOR OR assistant professor with M.S. degree to teach Mechanics and Route Surveying. Salary for nine months $4,000. to $5,000, depending on qualifications. Location, Northern New York. P-6114, Engineering News-Record.

POSITIONS VACANT

EXPERIENCED FIELD Superintendent for large multi-story commercial project. Good salary, permanent position. Send qualifications to personnel department, Construction Services, 701 Hardt Building, 1700 North Broad Street, Philadelphia, Pennsylvania.

WANTED, DRAFTSMAN; map, subdivision, plot plans, calculations; for small seashore engineering office. Top salary to qualified man. P-6129, Engineering News-Record.

EXPERIENCED STRUCTURAL Engineer. Steel Detailer with at least 10 years experience to check detail shop drawings and supervise six other detailers for fabricated structural and miscellaneous steel for buildings. Town of nine thousand, central Pennsylvania. Write detailed summary of education, experience and minimum salary expected. P-6139, Engineering News-Record.

EXPERIENCED CIVIL Engineer needed by the City of Fresno, California, for a permanent Civil Service position. We want a man with Water Utility Engineering experience. He must be capable of obtaining a certificate of registration with the State of California. For further information, write: Civil Service Board, Room 203 City Hall, Fresno, California.

SANITARY ENGINEER (registered, professional) requirements—degree in sanitary engineering and public health experience. $520. per month and travel expense. Contact Merit System Supervisor, Ky. State Department of Health, 620 S. 3rd, Louisville, Ky.

ENGINEERED (REGISTERED, professional) requirements—degree in chemical engineering and six years experience two of which must have been in the field of occupational health. $560 per month and travel expenses. Contact Merit System Supervisor, Ky. State Department of Health, 620 S. 3rd, Louisville, Ky.

BRIDGE DESIGNERS Wanted. Permanent location—5 day week—retirement. Reply stating experience, education, age. Wyoming Highway Department, Cheyenne, Wyoming.

POSITIONS WANTED

CONSTRUCTION ENGR.—BSCE, age 28, married 3 yrs experience heavy construction; highway, bridges, and field survey. Desires position with contractor on foreign project. PW-6028, Engineering News-Record.

CONSTRUCTION EXECUTIVE, available as project manager, on large operation, chief estimator for large organization or in other executive position where scope warrants employment of top man, thoroughly experienced on all types of construction and in every phase of general contracting. PW-5956, Engineering News-Record.

COST AND Office Engineer (27) six years industrial construction wants chance to help contractor save time and money. PW-5238, Engineering News-Record.

CIVIL ENGINEER, 15 years field experience, industrial and commercial buildings desires position in office of general contractor, estimating, purchasing, etc. prefer midwest location. PW-5958, Engineering News-Record.

ESTIMATOR—EXPERIENCED in all phases of competitive bidding on buildings (pricing, purchasing, etc.) to 10 million. C.E. degree, age 35, prefer Southwest. PW-5868, Engineering News-Record.

CONSTRUCTION EXECUTIVE — General superintendent mechanical equipment, processing equipment, and piping, 14 years as a superintendent in chemical plants and refineries; 28 years experience in construction. Education M.E. Salary and bonus arrangement. PW-6108, Engineering News-Record, 520 North Michigan Ave., Chicago 11, Illinois.

SEARCHLIGHT SECTION

This index is published as a convenience to the reader. Every care is taken to make it accurate but SEARCHLIGHT SECTION assumes no responsibility for errors or omissions.

Aberthaw Co. 124
Albert Pipe Supply Co., Inc. 124
Allied Construction Equipment Co. 127
Ambursen Dam Co., Inc. 125
American Air Compressor Corp. 125
Atkinson Co., Guy F. 125

Bechtel Corp. 123
Boers Equipment Co., Gil 127
Boyer, Co., R. H. 125
Branigan & Co., H. S. 124
Brown-Pacific-Maxon 123

Contractors Machinery Co. 126, 127
Cooney, G. A. 125
Cramer Assoc., R. V. 123

Davidson Pipe Co., Inc. 124
Day & Maddock 125
Deatherage & Son, G. F. 123
Diamond Construction Corp. 123
Drachman Steel Corp. 124
Dyer Co., Inc., W. H. 124

Foster Co., L. B. 126
Furnival Machinery Co. 125

Gillis & Co. 124
Globe Pipe & Fitting Co. 124
Greenheart Inc. 126
Grimshaw Construction Co. 124
Guion, H. P. 126

Judge & Co., Inc., Frank M. 126

Lestan Corp. 126
Linde-Grittith Construction Co. 127
Lubrecht, III, Wm. 125

McKee & Co., Arthur G. 122
Midwest Steel Corp. 124
Miller & Long Co., Inc. 127
Mississippi Valley Equipment Co. 126

Paterson Mack Distributors Inc. 127

Reading Inc., Eugene P. 127
Robbins & Co., W. J. 123
Rule Construction Co., C. F. 125

Smith Inc., L. B. 127
Southworth Tractor & Machinery Co. 127
Sherman Crane & Service Inc., Roger 125

Tamblyn System 123
Tudesco Bros. 126
Tractor & Equipment Co. 124

Williams Construction Co. 123, 124
Wilson Engineering Co. 123
Wing & Son Corp., R. B. 127

POSITIONS WANTED

CIVIL ENGINEER, M.C.E.; P.E. (Calif.). 7 years experience in hydraulics, specifications, irrigation and small construction. Prefer Western States. PW-6112, Engineering News-Record.

ADMINISTRATIVE ENGINEER, P.E., water supply, chemical, hydroelectric and industrial plants. Structural, hydraulic mechanical and related problems. Past affiliations consulting and industrial firms. Make your job easier by making mine tougher. Available April. Will relocate. Thirty years experience at your disposal. PW-6008, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. 35 years experience highway, sewer, water, mass housing. Age 56. Go anywhere. Preferably project housing in southwest. Resume and references upon request. PW-6084, Engineering News-Record.

ENGINEER, BSCE, 29, registered. Experience construction, structural design, estimating & sales. Prefer Florida or South-East. PW-5808, Engineering News-Record.

CHIEF DRAFTSMAN of structural steel fabricating co, registered structural engineer, will relocate to associate with a small or medium co, in a similar oil chief engineer capacity. PW-6113, Engineering News-Record.

CONSTRUCTION SUPT. 25 years experience in industrial and commercial building. Prefer work in East. PW-6123, Engineering News-Record.

CIVIL ENGINEER, P.E., 31, 2 years design, 6 years construction experience. Desires responsible position NYC or vicinity. Salary $8500. PW-6160, Engineering News-Record.

ESTIMATING: HEAVY Construction, 5 years good and varied experience. N. Y. only. PW-6156, Engineering News-Record

SUPERINTENDENT: BUILDING Construction. Experience involves over 25 years, in full charge on constructing industrial & commercial bldgs., hospitals, schools, churches, housing projects, etc; proven ability, available shortly, position of similar responsibility desired with responsible organization. PW-6170, Engineering News-Record.

MECHANICAL ENGINEER will soon go on mandatory retirement at 65 from large oil co. Not ready for the "Rocking Chair". Health very good. Looking for interesting activity in any type of engineering work. Lifetime experience mechanical and petroleum engineering, both field and office. Preferred location, South or Middle West, but will consider any location if proposition attractive. PW-6169, Engineering News-Record.

PROMOTION OR Construction engineer, 30, B.S.C.E. 5 years experience construction, 3 years sales promotion; desires position Eastern Nebraska. PW-6174, Engineering News-Record.

CONSTRUCTION ENGINEER, 28, BSCE, one year experience as structural detailer, four years in field on structural erection, and construction. Have worked on road, bridges, buildings, and a Hydro-Electric project. Desire responsible and challenging position. PW-6173, Engineering News-Record.

CONSTRUCTION MANAGER — age 47 — wide experience in grading, paving, sewer lines, and water lines—experienced estimator in grading and paving—cost management and subcontract negotiations. PW-6165, Engineering News-Record.

SALESMAN OR factory representative—wide experience in construction materials and equipment. PW-6166, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and engineer desires work in New England. Experienced industrial plants, housing, heavy construction, bridge and marine work, skilled estimator. PW-6168, Engineering News-Record.

CONTROLLER, ENGINEERING construction and accounting experience seeking post with responsibility for administration, budget, cost control, planning and related fiscal matters. PW-6175, Engineering News-Record.

SELLING OPPORTUNITY WANTED

WANTED: DISTRIBUTORSHIP in State of Florida for allied construction equipment. A-C Construction Equipment Rental Co., 3098 N.W. 27th Avenue, Miami, Fla.

SPECIAL SERVICE

Appeals Service: Goverment Construction Contractors usually have questions of fact under dispute. I can be of service to you whether you have only one question or the entire processing of appeals. Your dispute is my business. SS-5062, Engineering News-Record.

BUSINESS OPPORTUNITY

Partnership Available. Structural Engineer wants a full time working partner to invest minimum of $15,000.00 to start structural steel fabricating plant. Mid-South location. Prefer engineer. BO-6053, Engineering News-Record.

OVERSEAS EMPLOYMENT
Guam Project
ASSISTANT CHIEF ENGINEER
Experienced on large industrial type buildings and related utility projects. Graduate Engineer with at least 10 years' experience required.
ENGINEERS
Technical and Narrative Reports
Electrical Design
Architectural and Structural Design
Mechanical Design
Write, giving detailed account of experience, education, etc.
BROWN-PACIFIC-MAXON
"Guam" Contract NOy-13931
P.O. Box 3316, Rincon Annex
San Francisco "19"—Calif.

SALES ENGINEERS

Middle Atlantic Division of large company has openings for sales engineers in Baltimore, and Trenton, New Jersey to handle promotion and sale of fabricated metal products to engineering and construction markets. Ages 24 to 30. Engineering degree necessary.

P-4753, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

JOB ENGINEERS

MECHANICAL OR CHEMICAL
SAN FRANCISCO
assignment

Recent design experience on petroleum refineries or chemical plants. Assignment requiries thorough knowledge of heat exchangers, pumps, piping layouts, specification work, and analysis of bids. Compensation commensurate with ability. Please write furnishing complete chronological experience record and salary history, also full details regarding education, salary required, business and character references.

BECHTEL CORPORATION
220 Bush Street San Francisco 4, Calif.

Errors, Omissions, & Neglect Insurance
For Engineers & Architects
Underwriters at Lloyd's, London
Write for Information
W. J. Robbins & Company
885 North La Salle St., Chicago 10, Illinois

LEARN ESTIMATING
Complete Building Estimators Course, also Building Labor Calculator for practicing estimators. Thirty-fourth year serving the building industry. For free trial and all particulars write:
TAMBLYN SYSTEM
1420 Gilpin St. Denver 6, Colorado

Engineers—Foremen—Office Men
Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.
GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
411 So. 5th Ave. Lake Worth, Florida

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty third year
WILSON *Engineering Corp*
College House Offices HARVARD SQ. CAMBRIDGE MASS.

ENGINEERS—INSPECTORS
DRAFTSMEN—PARTY CHIEFS
WANTED IMMEDIATELY BY
ARCHITECT-ENGINEER
FOR OFF-CONTINENT AIR BASE

SR ENGINEERS:
Degree plus minimum 6 years design exp; industrial exp. not acceptable.

ENGINEERS:
Degree plus min. 4 yrs design exp; industrial exp. not acceptable.

LAB ENGINEERS:
Degree plus min. 4 yrs on soils, concrete or asphalt.

CHIEF INSPECTORS:
Degree plus min. 6 yrs construction inspecting or min. 10 yrs. Construction inspection without degree.

SR INSPECTORS:
Degree plus min. 3 yrs construction inspecting, or min. 6 yrs construction inspecting without degree.

CHIEF DRAFTSMEN:
Degree plus min. 6 yrs construction drafting; industrial exp not accept.

SR DRAFTSMEN:
Min. 4 yrs construction drafting.

PARTY CHIEFS:
Degree plus min. 3 yrs as Party Chief or min. 6 yrs as Party Chief without degree.

ALSO INSTRUMENT MEN & LAB ASSISTANTS

Insurance Benefits & Transportation Furnished
If qualified as above, send complete resume:
P-6181, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERING PERSONNEL
Our service meets industries need for qualified men in all phases of engineering $3-25000 level. Our confidential service protects present job. If you seek a new one or desire to re-locate, write
RICHARD V. CRAMER Associates,
510 Wilson Bldg. Syracuse 2, N. Y.

WANTED
All-Steel, Standard Gauge,
Side Dump, Drop Door
Dump Cars
70-Ton, 30- or 50-Cubic Yard Capacity
W-6161, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

WANTED
8 x 10—2 or 3 DRUM DECK ENGINES
Diamond Construction Company
P. O. Box 647 Savannah, Georgia
Phone 6-2451

WANTED TO BUY
4000' 15 or 16" CONCRETE FORMS
WILLIAMS CONSTRUCTION CO.
Box 145 Baltimore 20, Md.

SEARCHLIGHT SECTION

FOR SALE

New and Used material—Immediate delivery from stock Angles, Channels, I and WF Beams, especially for Contractors needs

H BEAMS

50 pcs	10" B P S	42#	48/60'
46 "	10" B P S	57#	40/67'6"
60 "	12" B P S	53#	60'
63 "	14" B P S	73#	60/75'

PILE SECTIONS

Phone or Wire your steel requirements

We are also interested in purchasing your surplus material.

We assure you our prices will be the best obtainable.

HY DRACHMAN STEEL CORP.

Warehouse
1423 34th Avenue, Astoria, New York
AStoria 8-4484 8-8023

Sales Office
563 East Tremont Ave., New York City, N. Y.
CYpress 9-5440

FOR SALE

STEEL BARGES - DREDGES

TUGS - WORK BOATS - LIGHTERS

For every Purpose

H. J. BRANIGAN & COMPANY

75 West Street, New York 6, N. Y.

Telephone: WHitehall 3-6240

PUMPCRETE FOR SALE

Model 180 Single Pumpcrete
1000' of pipe and fittings
For Quick Sale—$3500.00

ABERTHAW COMPANY

133 Southampton St. Boston 18, Mass.

Phone Highlands 5-6700

DEPENDABLE USED MACHINES

Special:—Lorain ¾ yd. dragline with 30" swamp cats; rebuilt in our shop. Come see it!

Bay City ¾ yd. dragline	Browning 17½ ton truck crane	Mosabi 4x16 screen
Lorain ½ yd. dragline	Koehring 1¼ yd. Diesel crane; 80' boom	40' bucket elevator
Northwest truck crane	Universal 880 Diesel gravel plant	3 yd. Dumpcrete
Link Belt LS-75 dragline	Dart 10 ton end dump truck	Hoplo backhoe
Gradall excavator	Ford tractor with Wagner loader	Trailer road broom

For rent,—Cranes, truck cranes, buckets, frost balls, floats and other accessories.

10002 Southwest Highway **TRACTOR & EQUIPMENT CO.** Oak Lawn, Ill.

SURPLUS FOR SALE

3 CY Mdl 3LS Hendrix Dragline Bucket	$850.00
10" Pomona Vertical Centrifugal Pump	850.00
6" Pomona Vertical Centrifugal Pump	600.00
3 50 KVA Gregory Transformers 2400/110 Ea.	150.00

GRIMSHAW CONSTRUCTION CO.

208 K-O-M-E Bldg. Tulsa 19, Okla.

PIPE

SURPLUS NEW and USED FOR SALE

ALBERT pipe supply co., inc.

BERRY AT NORTH 13TH ST. • BROOKLYN 11, N. Y.

FOR SALE OR RENT—EASY TERMS

Rebuilt — A 1 Condition

48B Bucyrus Erie Shovel 2 cy Diesel
Caterpillar Auto Patrol No. 12
Caterpillar D8 Bulldozer
Caterpillar Scraper Model 80
3—Caterpillar DW 10's

WILLIAMS CONSTRUCTION COMPANY

Box 145 Balto. 20, Md. Murdock 6-6600

Byers 83-CC ¾ yd. truck crane w/100' boom $15,000.00
Bucyrus 22B ¾ yd crane w/60' boom..... 7,500.00
2—210 c.f.m. Gyro-flow compressors (1953) 5,000.00
LF 192 International Harvester tractor w/Martin Lowboy trailer (New 1951)..... 10,000.00
Shovel, back hoe, clamshell and drag buckets available.

FS-5507, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

FOR SALE

model 1201 Lima Dragline
model 4500 Manitowoc, 5 yd.
Northwest shovels 1½ & 2½ yd.
Bucyrus-Erie shovels & draglines (1½ yd up to 9 yd)
Euclid Trucks 15 & 22 tons
(EQUIPMENT OF ALL KIND)

FS6045 Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

RAILS-TIES

TRACK ACCESSORIES

NEW and RELAYING

RAILROAD Cross and Switch TIES

Promptly from adequate stocks

NEW and USED (as available)

GILLIS & COMPANY

29 East Madison St. Chicago 2

GLOBE PIPE & FITTING CO.

VALVES FITTINGS NEW **PIPE** USED FOR ALL PURPOSES

785 Metropolitan Ave., Brooklyn 11, N. Y.

EVergreen 7-6220

EST. 1904

DAVIDSON

PIPE COMPANY INC.

One Of The Largest Stocks In The East
Seamless and Welded ⅛" to 26" O.D. All wall thickness Manufactured. Specialty large sizes. Cutting — Threading — Flanging — Fittings — Valves.

Call GEdney 9-6300

50th St. & 2nd Ave., B'klyn 32, N. Y.

RAILS - TIE PLATES

Frogs & Switches—Track Accessories

W. H. DYER CO., INC.

2110-X Railway Exchange Bldg., St. Louis 1, Mo.

SEARCHLIGHT SECTION

FOR SALE

Model 101 General Truck Crane, 60′ Boom, 15′ Jib, Bucket & Backhoe, 6x6 Mach Carrier, Gas Driven.
Excellent Condition—Located Eastern Ohio

Model 4 Northwest Crane & Dragline, 65′ Boom, Gantry, Swinging Fairleads, Cummins Diesel Engine.
Good Cond. Located Eastern Ohio

Model T6K Michigan Truck Crane. Clam & Drag. Comb.
Excellent Condition. Located So. Wisc.

Model 200D REX PUMPCRETE. Complete with over 600′ 8″ Pipe, Spare Parts.
Excellent Cond. Located So. Wisc.

G. A. COONEY
2128 Hudson Ave. Chicago 14, Ill.
Financial 6-0456

FOR SALE

54-B Bucyrus-Erie Crane
L-80-K Lorain Crane
254-W Lorain Motor Crane
D-7 Caterpillar with Dozer
60 H.P. Vertical Oil Fired Boiler
E-4 Pile Extractor
#7 Pile Hammer
Clyde 3 Drum Hoist

Subject to Prior Sale

C. F. RULE CONSTRUCTION CO.
P. O. Box 517 Nashville, Tennessee

FOR RENT OR SALE

THOMAS ELECTRIC HOISTS

Excellent Tower or Rigging Units

2	20-HP	DD	2500 SLP
2	50-HP	DD	6000 SLP
1	75-HP	DD	8000 SLP
3	90-HP	DD	12000 SLP
1	125-HP	DD	14000 SLP
1	100-HP	3D	10000 SLP
1	125-HP	3D	14000 SLP

THE DAY & MADDOCK COMPANY
8201 Almira Ave., S-W.
Cleveland 2, Ohio

FOR SALE
3½ yd Diesel Shovel (motor rebuilt)
4—EUCLID Rear Dump Trucks $23,000
1½ yd Link-Belt Drag $7,500.00
⅝ yd Link-Belt Shovel $5,900.00
Oliver-Cletrac Dozer model FDE $5,000
5—model LJ Mack 10 wheel dump trucks $37,500
WILLIAM LUBRECHT, III
311 W. Diamond Ave. Hazleton, Pa.
Phone GLadstone 5-4041

LOW COST INSTALLATION AND OPERATION

CABLEWAYS
IMMEDIATE SHIPMENT
ELECTRIC, STEAM or DIESEL
CAPACITY 3 to 20 TONS
SELL, RENT or BUY
FOR DAMS BRIDGES BREAKWATERS FILTRATION AND SEWERAGE PLANTS
FOR SPEED ECONOMY EFFICIENCY FLOOD SAFETY LABOR REDUCTION
AMBURSEN DAM CO. INC.
295 MADISON AVE, NEW YORK

COMPRESSOR DIRECTORY

World's Best Rebuilts

STATIONARY

12.7 CFM	1000 psi	2 stage Ingersoll 5 HP Elec
48.6 CFM	3500 psi	3 stage Ingersoll 25 HP Elec
122 CFM	100 psi	American 20 HP Elec
125 CFM	100 psi	8¼x4½ Davey VB9-6 Available
142 CFM	125 psi	6/6/8x5 Ingersoll Type 40—25 Elec
211 CFM	100 psi	9½ x 5 American 40 HP Elec
254 CFM	100 psi	10x10 Ingersoll ER-1 40 HP Elec
268 CFM	500 psi	10/4¾x10 Ingersoll 75 HP Syn
278 CFM	125 psi	2 stage Chicago PB-50 HP Elec
285 CFM	125 psi	2 stage Gardner "WB" 50 HP
291 CFM	40 psi	3 cylinder Ingersoll Type 40
343 CFM	500 psi	11/5x13 Worth Elec or Steam
348 CFM	100 psi	12-7½x8 IR-XRB
360 CFM	125 psi	12-7½x10 Penn
364 CFM	20 psi	12 x 7 Gardner "RX" 2 avail.
426 CFM	100 psi	12x11 Ingersoll ES-1 NL—Oil-less
426 CFM	100 psi	12x11 Ingersoll ES-1 75 HP Elec
460 CFM	125 psi	13/9x10 Ingersoll XRB—Duplex
510 CFM	125 psi	13/8x12 Ingersoll XRB—Duplex
676 CFM	125 psi	15/9½x12 Ingersoll XRB—Dup.
861 CFM	30 psi	17 x 11 Ingersoll ES-1
931 CFM	55 psi	17 x 13 CPT Elec or steam
1085 CFM	35 psi	20 x 12 Penn-3A 100 HP Elec
1292 CFM	35 psi	20x13 Chicago T-B 125 HP Elec
1574 CFM	100 psi	22-14x16 IR-PRE
1723 CFM	110 psi	"XPV" 4 corner Ingersoll steam

SPECIAL—Compressors for special air applications and conditions
PORTABLE—15 CFM to 600 CFM
VACUUM PUMPS—3 CFM to 5881 CFM
DELIVERIES—Always prompt.

American
AIR COMPRESSOR CORP.
DELL AVE. & 48th ST., NORTH BERGEN, N. J.
Telephone UNion 5-4848

FREQUENCY CHANGERS
FOR SALE

3—18.75 KVA Electric Products Generators 3 phase—120 volts—120 cycles—1750 RPM

direct connected to:

3—10 HP Electric Products Induction Motors 3 phase—60 cycles—220/440 volts—1750 RPM with starting equipment

Price . . . . . $750.00 Set,
fob So. San Francisco, Calif.

GUY F. ATKINSON COMPANY
10 West Orange Avenue
South San Francisco, Calif.
Phone: PLaza 6-0300—Ext. 125

LOCOMOTIVES

1—Plymouth 8 Ton 36″ Ga. #4131.
1—Plymouth 8 Ton Gas, Std. Ga. #4095.
2—Plymouth 25 T.—35″ Ga.—Diesels.
1—Brookville 3 Ton—Gas—24″ Ga.—#3402.
2—Whitcomb 9 & 12 Ton 30″ Ga.—Torque Drive—Like New.
2—Conway Mod. 75 Muckers, #256 & #305.
1—G.E. 25 T—36″ Ga.—Diesel-Electric.
Bridgeford Axle Lathe.
2—50 Ton Twin Hopper Cars.
1—Whiting Type B 35 Ton—Pit Drop Table—New.
1—Southwark 100 Ton Hydraulic Press.
15—15 Ton Capy. 30″ GA. Flat Cars—Like New.
Birdsboro 400 Ton Wheel Press.

Orton—40 T—Gas Locomotive Crane—Late Model—Bargain.

1—Browning 30 Ton Late Model—Steam.

R. H. BOYER
2005-13 W. Bellevue St. Philadelphia 40, Pa.
Phone Sagamore 2-7132

USED EQUIPMENT FOR SALE

1—¾ Yd. Buckeye Shovel, with 40′ Crane Boom & Fairlead for Dragline.
1—Model D Tournapull
1—Model C Tournapull
1—1½ Yd. Osgood Shovel
1—10-B Bucyrus-Erie Shovel
1—375-BC American ¾ Yd. Shovel and 55′ boom, diesel engine (1952)
1—TL-20 Lorain Moto Crane, 30′ boom, mounted on Moto carrier
1—22-B Bucyrus-Erie Clamshell, GM diesel, also shovel attach.
1—200 Osgood ½ Yd. Crane
1—200 Osgood ½ Yd. Backhoe
3—LD-5 Scoopmobiles
20—Ingersoll-Rand Compressors—600, 315, 210—Wagon Drills—Breakers. etc.
1—9B3 McK-Terry Hammer
1—50′ set pile leads for McK-T. Hammer
5—K5 Nelson Model K Bucket Loaders, pneumatic tired
1—Meili-Blumberg Model 44 gas pw'd Grader (demonstrator)
1—Barber Green Bucket Loader on crawler
2—Caterpillar D7 Tractors with LeTourneau PCU and Tilt Blade
1—International TD-18 Tractor, diesel, B.E. hyd. bulldozer
1—Caterpillar D4 Tractor with ¾ cu. yd. Traxcavator
1—Rex 160 Single Pumpcrete
1—Rex 200 Single Pumpcrete
1—Rex 200 Double Pumpcrete
Clamshell Buckets—⅜, ½, ⅝, ¾, 1 Yard

FURNIVAL MACHINERY CO.
54th at Lancaster Ave., Phila 31, Pa. • TR 7-5200

CRANES FOR RENT

CRAWLERS — Capacities to 80 tons, Booms to 180 ft.
TRUCK CRANES — Capacities to 35 tons, Booms to 130 ft.

P and H, Lima and Manitowoc.
Top-Condition erection cranes

ROGER SHERMAN
CRANE SERVICE, INC.
East Hartford, Connecticut JAckson 8-4106

FOR SALE

DIESEL ELECTRIC LOCOMOTIVES

STANDARD GAUGE

25 - 44 - 45 - 65 - 75 tons

and

5—G.E. 125 ton—1000 HP

Write for Details

FRANK M. JUDGE & CO., INC.
7010 Empire State Building
New York 1, N. Y.

FOR SALE

1—30" DREDGE DIESEL
1—16" DREDGE DIESEL
1—10" DREDGE DIESEL
1—20" NEW DREDGE PUMP
1—20" 90% NEW DREDGE PUMP
1—3½ YD. HARD DIGGING CLAM SHELL BUCKET ROUND NOSE
1—8 CU. YD. DIPPER DREDGE, STEEL HULL
1—FAIRBANKS-MORSE MODEL 41C, 80 D.W. DIRECT CONNECTED DIESEL GENERATOR SET

H. P. GUION
303 W. 42nd St., N. Y. C.
Tel. Circle 6-0919

---

36 TANK CARS TANKS
10,000 & 8000 GAL. CAP.—WITH OR WITHOUT HEATING COILS
Shipment N. J.—Ill.—Ark.—Kan.
LESTAN CORP.
Rosemont, Penna.

Lorain 80—
1 ¾ Yd.
Combination Shovel & Crane
TEDESCO BROS.
18-12 25th Ave. Astoria, L. I. City, N. Y.
RAvenswood 8-1543

PILING

SURPLUS NEW and USED For Sale or Rent

We do a Nation-Wide business in

STEEL SHEET PILING

IMMEDIATE SHIPMENT

685 pcs. 68-39 ft. Carn. MP-101—West Coast
396 pcs. 60-50 ft. M-116 & M-115—Illinois
400 pcs. 60-30 ft. Beth. DP-2—New York
504 pcs. 60 ft. M115, M112, M116—Kansas City
80 pcs. 50 & 40 ft. Carn. M-112—N. Dakota
86 pcs. 40 ft. Carn. M-116—S. Carolina
130 pcs. 30 ft. Carn. M-115, Ohio.

Other Lengths & Sections at Various Locations

PILE DRIVING EQUIPMENT

Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Hoists and Boilers

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., Chestnut 1-4474, St. Louis, Mo.

STEEL SHEET PILING

600—Pcs. M-116 in 40 to 60'—Chicago
130—Pcs. M-115 in 50 to 60'—Chicago
140—Pcs. M-112 in 60' —Chicago
300—Pcs. M-116 in 50 to 60'—Kansas City
100—Pcs. M-115 in 50' —Kansas City
105—Pcs. M-112 in 60' —Kansas City
83—Pcs. M-112 in 25 to 50'—North Dakota
100—Pcs. I-23 in 12 to 16'—Illinois
86—Pcs. M-116 in 29 to 30'—Southern Illinois
49—Pcs. I-22 in 30' —Wisconsin

Available for Prompt Shipment
Other Lots at Various Locations

CONTRACTORS MACHINERY CO.
Phone VAlentine 4740
2637 SOUTHWEST BLVD
KANSAS CITY 8, MO.

SPECIAL OFFERING!

MP-101 STEEL-SHEET

PILING

900 TONS—EVERY LENGTH TO 60 FT.

SPECIALLY PRICED

Attractive Savings for Western—Mountain and Gulf States Delivery.

GET OUR QUOTATIONS
Offer Subject To Prior Commitment

H-BEARING PILE • PIPE for PILING

L. B. FOSTER CO.
1721 Commerce Bldg. Houston 2, Tex.
3460 Wilshire Blvd. Los Angeles 5, Cal.
CHICAGO 4, PITTSBURGH 30, NEW YORK 7

FOR SALE

STEEL SHEET PILING

AT CHIEF JOSEPH, WASHINGTON
Shipped New—Used Only One Job

CARNEGIE Length	MP-101 Pcs.	MP-102 Pcs.	TEES Pcs.
72-65 ft.	108	100	2
65-60 ft.	210	50	9
60-50 ft.	210	5	18
50-45 ft.	290	2	7
45-40 ft.	120	1	13

Also quantity shorter than 40 ft.—Quick shipment regardless of job location, write, wire or phone.

MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St., CHestnut 4474, St. Louis 1, Mo.

GREENHEART

PILING • TIMBER • LUMBER
Rated f3300 by N. Y. Port Authority
Fire and Marine Borer Resistant
GREENHEART (DEMERARA) INC.
52 Vanderbilt Ave — New York 17, MU 6-0410

FOR RENT OR SALE

Carnegie MP-112 New Sheet Steel Piling
550 pcs. 46 ft. and 650 pcs. 45 ft.
Can Ship Immediately In Carload Lots

MISSISSIPPI VALLEY EQUIPMENT CO.
503 Locust St., CH 1-4474, St. Louis, Mo.

When you need
PILING . . . fast

use this section, as many contractors do, as a piling buying directory. It can save you time when you want to know, quickly, where to buy good new or used piling.

Each of these advertisements

represents a current WANT of an individual or concern, with some element of profit in each, for whoever can fulfill the need.

Some are employment opportunities; others offer solutions to pressing production problems; still others offer good used equipment.

"Searchlight" advertisements are constantly changing. New opportunities find their way into this great WANT medium each issue. Regular reading of the "Searchlight" pages can be as important to you as reading the editorial pages. One is news of the industry, the other—NEWS OF OPPORTUNITIES currently offered in the industry.

for

EVERY BUSINESS WANT

Think **"SEARCHLIGHT"** *First*

PILE DRIVING EQUIPMENT

Vulcan and McKiernan-Terry

Steam Pile Hammers and Extractors

Drop Hammers - Driving Caps

Steel Leads - Pile Driver Hose

Hoists and Boilers

CONTRACTORS MACHINERY CO.

Phone VAlentine 4740 — 2637 SOUTHWEST BLVD. KANSAS CITY 8, MO

FOR SALE

15,000 sq. ft. Universal

CONCRETE FORMS

Used once or twice. New Condition.

Call or Write

MILLER & LONG CO., INC.

2840 Northampton St., N.W. Washington, D. C.

Phone: WOodley 6-26-29

FOR SALE

L-G #14-41B — Bucyrus-Erie Caterpillar Steam Crane, 75' boom Serial #10976. Rebuilt 1948 by H. O. Penn Machinery at a cost of $8,117.00. New International Vertical Firetube Boiler (150# W.P.) and Oil Burning Equipment installed 1948. Presently working — Excellent Condition. **$11,000.00 f.o.b. our yard.**

L-G #15-41B Bucyrus-Erie Caterpillar Steam Crane, 65' Boom—10' Extension, Serial 4761. Rebuilt 1947 by H. O. Penn Machinery at a cost of $7,175.89. Installed New Oil Burning Equipment and New International Vertical Tube Boiler (150# W.P.) in 1948. Excellent condition. **$11,000.00 f.o.b. our yard.**

LINDE-GRIFFITH CONSTRUCTION CO.

152 Passaic St. Newark 4, N. J.

Two—E18 TOURNAROCKERS

Brand new—less tires and wheels.
For operation with current Model "CT" Electric Tournapulls.
$3900.00 each

T. SOUTHWORTH
Tractor & Machinery Co., Inc.
Albany, N. Y. Phone 5-5255
"CATERPILLAR" Dealer

FOR SALE

SHOVEL • • •

1 Used Koehring 1005 high lift shovel, 2½ yard general purpose shovel dipper; crawlers: 180" x 120", with 42" shoes, with extra heavy counterweight; with 6DC1879 Buda Diesel Engine, with self raising high A frame, with Kohler light plant with flood light equipment, with shovel boom light at boom point. Excellent condition.

For further information write:

Allied Construction Equipment Co.

4015 Forest Park Avenue
St. Louis 8, Missouri

Telephone: **Franklin 1-1818 or 1-7132**

- 8 Euclids, 1951 Scrapers, 15.5 cu. yd., Cummins diesel, machines and tires in excellent condition.
- 3 LeTourneau 12 cu. yd., 1951 Tournapull C Roadsters 12 cu. yd., Buda diesel, tires excellent condition.
- 2 Super C Tournapulls, 12 yd., Cummins diesel, bargain, $3,000.00 ea.
- 3 Wooldridge Terracobras, 15 yd., Cummins diesel, good tires, bargain, $3,500.00 ea.
- 1 Lima 1-½ cu. yd. Model 604 Cat. diesel D-13000, 1954 machine, used 9 months, dragline, 65' boom, long crawlers, 36" shoes, 2 yd. Hendrix bucket.
- 1 Almost new 600 cu. ft. LeRoi diesel compressor, used 2 months, Murphy 21 diesel.
- 3 Rebuilt Gardner-Denver 315 cu. ft., gas engine driven, portable compressors.
- 3 Rebuilt Gardner-Denver 210 cu. ft., gas engine driven, portable compressors.
- 1 Koehring 304 heavy duty, 1954 clamdrag GM diesel, long crawlers, used 6 months.
- 1 Rebuilt 34E Koehring Twinbatch crawler diesel paver.
- 1 2 year old LeRoi 500 cu. ft. Cat. diesel compressor.
- 1 Chicago Pneumatic 500 cu. ft. Cat. diesel compressor.

GIL BOERS EQUIPMENT CO.

7625 S. Kedzie Ave., Chicago 29, Ill.

HEAVY DUTY DUMP TRUCKS

12 Mack A-54-S

EN-510" Gas Engine
Mack Tandem Bogie
Dumper Transmission
10.00 x 22 Lug Tires
8 yd. Body—2 yd. S.B.
Year 1952
$6500. each

5 Mack LJSWX-D

Mack 673" Thermodyne Diesel
Mack Tandem Bogie
Dumper Transmission
11.00 x 24 Lug Tires
10 yd. Body—2 yd. S.B.
Year 1954
(less than 6 mos. service)
$14,000. each

These units are in excellent condition. Immediate delivery.

Other Used Trucks also available.

PATERSON MACK DISTRIBUTORS, Inc.

Route 46, East Paterson, N. J.
Tel. Fairlawn 6-1311

GOOD BUYS

Half Yard Osgood Shovel, machine new 1948 in excellent condition, shovel attachment is unused.....**$7,500.00**

1 Schield Bantam Model T35 (new in 1953) mounted on White Half Track complete with both Shovel and Backhoe attachments, excellent..**$7,500.00**

R. B. Wing & Son Corp.

384 Broadway, **Albany, N. Y.**
Phone **3-4161**

STOCK SPECIALS

For Sale or Rent

1—P & H Model 855 Crawler Shovel, 2 yd. capacity, Cat Diesel power. Reconditioned. Crane boom available.

1—Bay City Model 650, 1¼ yd. Crane or Hoe, Diesel power. Excellent condition.

1—Bay City Model 65, 1½ yd. Crawler Hoe, Shovel or Crane. Rebuilt. Diesel power.

1—Osgood 1 yd. Crawler Hoe & Crane, 50' boom. Gas Power. Good Condition.

1—Bay City Model 45 Crawler Shovel, ¾ yd. Cat. Diesel or G.M. Late Model. Reconditioned.

1—Bay City Model 42, ¾ yd. Crawler Hoe-Shovel. Thoroughly reconditioned, Gas Power. Cat Diesel available.

1—Link-Belt LS-71 Crawler Crane, ¾ yd. capacity, 45 ft. crane boom. Late Model in excellent condition.

1—Northwest Model 3 Crawler Shovel ¾ yd. Gas Power. Good running condition. Boom available.

1—Bay City Model 30, ½ yd. Crawler Shovel. Gas Power. Late Model fully reconditioned.

1—Bay City Model 25, ½ yd. Crawler mounted hoe or shovel. Gas Power. Completely rebuilt. Late model.

1—Michigan C-16, ½ yd. Crawler Hoe. Gas Power. Reconditioned. Crane boom available.

1—Lorain Model 30, ½ yd. Crawler Shovel & Hoe, Checked & in good condition.

1—Koehring Model 205, ½ yd. Crawler Hoe, Gas Power. Late model fully rebuilt.

1—Bay City Model 20, ⅜ yd. Crawler Shovel or Hoe, gas power. Rebuilt.

1—Bay City Tractor Shovel ⅜ yd. capacity, Hoe, Shovel or Crane. Rebuilt.

1—Michigan TL DT-20, ½ yd. Truck Crane. Late Model on factory carrier. Excellent condition.

1—Michigan Model T6K Truck Mounted Shovel. Late model. Perfect condition.

1—Lorain Moto Crane Model MC-4 on factory carrier—11:00 x 20 tires. Gas Power. In excellent operating condition.

1—Bay City Model 20, ⅜ yd. Crane on Mack Chassis. 40 ft. Crane Boom.

1—Caterpillar D-8 Tractor I-H Series DDPCU.

Clamshell Buckets, ⅜ to 2 cu. yd., also several Crane Booms — Trench Hoes and Shovel Attachments — Assorted makes.

"Quick-Way" Model E — Shovel attachments.

Check on what you may require

EUGENE P. READING, INC.

Walnut St. B. & O. R. R.

Roselle, New Jersey

P. O. Box **Chestnut 5-0200**

EUCLIDS

Used 13 yd. bottom dumps
Cummins & General Motors Powered
Located - Texas

Write, wire or Phone

L. B. SMITH, INC.

Camp Hill, Penna.
Tel: **Harrisburg, Regent 7-3431**

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names

Additional cards on following pages

NEW ENGLAND

Engineering Services Inc.

Foundation Investigations,
Soil Testing & Test Borings
Minerals Exploratory
Service

119 New London Tnpk. Glastonbury, Conn.

Goodkind & O'Dea

Consulting Engineers

Design and Supervision
Foundations, Structures, Highways

214 Dixwell Ave. Hamden, Conn.
125 Church St. Malverne, N. Y.
3 3 Hoover Ave. Bloomfield, N. J.

Genovese & Shumavon

Consulting and Designing Engineers

Expressways, Parkways, Highways
Topographic and Highway Surveys
Airports, Bridges, Beach Developments
Design and Supervision of Construction
294 Elm Street 67 West 44 Street
New Haven, Conn. New York 36, N. Y.

Fay, Spofford & Thorndike

Engineers

John Ayer Ralph W. Horne
Bion A. Bowman William L. Hyland
Carroll A. Farwell Frank L. Lincoln
Howard J. Williams
Members, American Society of Civil Engineers

Airports, Bridges, Turnpikes
Water Supply, Sewerage and Drainage
Port and Terminal Works
Industrial Buildings

Designs Investigations
Supervision of Construction
Boston New York

Jackson & Moreland

Engineers and Consultants

Design and Supervision of Construction
Reports—Examinations—Appraisals
Machine Design—Technical Publications
Boston New York

Chas. T. Main, Inc.

Engineers

Design and Supervision of
Construction for Industrial Plants
Electrical, Steam and
Hydraulic Engineering
Investigations, Reports and Appraisals
Chamber of Commerce Bldg.
80 Federal St., Boston, Mass.

Metcalf & Eddy

ENGINEERS

Investigations Reports Design
Supervision of Construction
and Operation
Management Valuation Laboratory
1300 Statler Building, Boston 16

Thomas Worcester Inc.

Engineering—Architecture
Construction Management

Structures of all Types
Highways and Toll Projects
Waterfront Facilities
Industrial Developments
85 State Street, Boston 9, Mass.

C. W. Riva Co.

Engineers

Edgar P. Snow Robert C. Barker
John F. Westman John H. Grauss

Highways, Bridges, Tunnels, Airports, Foundations, Sewerage, Water Supply.

511 Westminster St., Providence 3, R.I.

MIDDLE ATLANTIC

Airways Engineering Corp.

Airports, highways, dams, fuel storage, pipe lines, aerial topographic mapping.
1212 - 16th St., N.W.,
Washington 6, D. C.
Phone: REpublic 7-8131.

Alster & Associates, Inc.

Photogrammetric Engineers

Topographic Mapping, Planning, Surveying, Map Consultants, Photo Mosaics.
6135 Kansas Ave., N. E.
Washington 11, D. C.
Phone: Taylor 9-1167

Oscar Sutermeister

Consultant on Defense Planning

Reduction of Vulnerability to Atomic and Hydrogen Bomb Attack—Industrial and Urban Dispersion—Protective Construction—Underground Relocation

5923 Johnson Ave. Bethesda 14, Md.

Whitman, Requardt & Associates

Engineers—Consultants

Civil—Sanitary—Structural
Mechanical—Electrical
Reports, Plans, Supervision, Appraisals
1304 St. Paul St., Baltimore 2, Md.

Berger Associates

Consulting Engineers

Studies, Design and Supervision
Expressways — Airfields
Structures — Foundations
Soil Investigations — Borings
East Orange — New Jersey
Harrisburg — Pennsylvania

Greer & McClelland

Consulting Foundation Engineers

SOIL INVESTIGATIONS

Borings
Laboratory Tests
Foundation Designs & Analyses
Reports

98 Greenwood Ave. Montclair, N. J.
2649 N. Main St. Houston, Texas

Edwards, Kelcey & Beck

Consulting Engineers

Reports, Design Supervision
Subways, Expressways, Traffic, Parking
Harbor Works, Bridges, Tunnels
Housing and Industrial Developments
Newark, New Jersey
New York Philadelphia Boston

Porter, Urquhart & Beavin

O. J. Porter & Co.
Consulting Engineers

Airports-Highways-Dams-Structures
Foundations-Stabilization-Pavements
415 Frelinghuysen Ave., Newark 5, N. J.
76 Ninth Ave., New York 11, N. Y.
3568 West Third St., Los Angeles 5, Calif.
516 Ninth St., Sacramento 14, Calif.

Frank E. Harley and Associates

Consulting Engineers

Design, Surveys, Plans and Construction Highways, Sewerage and Sewage Treatment, Water Supply and Purification, Municipal Problems.
Harley Bldg., 260 Godwin, Wyckoff, N. J.

B. K. Hough

Consulting Engineer
Soils & Foundation Engineering

Site investigations, soil testing, design analysis for earthworks, foundations and pavements, field inspection, engineering reports, consultation.
121 E. Seneca St., Ithaca, New York

Ammann & Whitney

Consulting Engineers

Design — Construction Supervision
Bridges, Highways, Expressways, Buildings, Special Structures, Airport Facilities
76 Ninth Avenue, New York 11, N. Y.
724 E Mason Street, Milwaukee 2, Wis.

Barker & Wheeler

Water Supply Utility and
Sewerage Industrial
Sewage Disposal Valuations
Power Systems Reports
New York City, 11 Park Place
Albany, N. Y. 36 State St.

Barstow & Mulligan

Consulting Engineers

Movable & Long Span Bridges
Prestressed Structures

112 W. 42 Street New York 36, N. Y.

Bogert and Childs

Consulting Engineers

Clinton L. Bogert Fred S. Childs
Ivan L. Bogert Donald M. Ditmars
Robert A. Lincoln Charles A. Manganaro
William Martin

Water & Sewage Works Refuse Disposal
Drainage Flood Control
Highways & Bridges Airfields
624 Madison Avenue, New York 22, N.Y.

Bowe, Albertson & Associates

Engineers

Water and Sewage Works—Industrial Wastes—Refuse Disposal—Municipal Projects—Airfields—Industrial Buildings — Reports — Designs — Estimates —Valuations—Laboratory Service.

110 William St., New York 7, N. Y.

Builders Estimating Service, Inc.

Cost Estimates
Quantity Surveys
Material Purchase Lists

140 Nassau St., New York 38, N. Y.
COrtlandt 7-0323.

Buck, Seifert & Jost

Consulting Engineers

(formerly Nicholas S. Hill Associates)
Water Supply — Sewage — Hydraulic Developments, Reports and Valuations. Chemical and Biological Laboratories.
New York City, 112 E. 19th St.

Brown & Blauvelt

CONSULTING ENGINEERS

Expressways, Highways, Parkways
Airports, Bridges, Dams, Water Supply

Industrial and Chemical Plants
Sewage Disposal

Preliminary Reports, Engineering Design, Construction Supervision

488 Fourth Ave., New York 16, N. Y.

Cotton, Pierce, Streander, Inc.

Associated Engineering Consultants

Water Supply, Treatment, Distribution
Sewage, Sewage Treatment
Refuse Disposal, Trade Wastes
Power Plants
Reports, Plans, Supervision

132 Nassau St., New York, N. Y.
PO Box 198, Hyde Park 36, Mass.
1405 W. Erie Ave., Phila. 40, Pa.
55 Caroline Rd., Gowanda, N. Y.

Ebasco Services Inc.

ENGINEERS
CONSTRUCTORS
BUSINESS CONSULTANTS

Design and Construction
Financial and Operating Consultation
Investigations and Reports
Consulting Engineering

Two Rector Street New York
209 S. LaSalle Street Chic. 4, Ill.
204 Southland Life Bldg.
Dallas 1, Texas
611 Equitable Bldg. Portland 4, Ore.
1625 Eye Street, N.W. Wash. 4, D. C.

The Giles Drilling Corporation

Engineering Geology Reports
Foundation Investigations
Soil Testing & Test Borings

2 Park Ave New York 16, N. Y.

Hardesty & Hanover

Consulting Engineers

Bridges
Long Spans of All Types
Movable—Lift, Bascule and Swing
Hanover Skew Bascule
Steel and Concrete Spans
Grade Crossing Eliminations

Expressways and Thruways
Other Structures
Foundations
Supervision, Reports, Appraisals

101 Park Avenue, New York 17, N. Y.

Quick

solutions to your technical problems are available through these consultants. Think first of the Professional Services Section of your publication when considering calling in an expert.

Frederic R. Harris, Inc.

CONSULTING ENGINEERS

F. H. Dechant, E. J. Quirin,
E. H. Harlow

Harbors, Piers & Bulkheads, Drydocks.
Foundations, Soil Mechanics.
Sanitary & Industrial Waste Disposal.
Water Supply, Flood Control.
Airports, Highways, Bridges.
Power, Industrial Plants, Buildings.

27 William Street New York
3 William Street Newark
Fidelity Phila. Trust Bldg. Philadelphia

Hazen & Sawyer

Engineers

Richard Hazen Alfred W. Sawyer
Water and Sewage Works,
Industrial Waste Disposal,
Drainage
Reports, Design, Supervision of Construction and Operation
110 East 42nd St., New York 17, N. Y.

Howard, Needles, Tammen & Bergendoff

Consulting Engineers
Bridges and Structures
New York, N. Y., 55 Liberty St.
Kansas City, Mo., 1805 Grand Ave.

Knappen-Tippetts-Abbett-McCarthy

Engineers

Ports, Harbors, Flood Control, Power, Dams, Bridges, Tunnels, Highways, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.

62 West 47th Street, New York City

Moran, Proctor Mueser & Rutledge

Consulting Engineer

Foundations for Buildings, Bridges and Dams; Tunnels, Bulkheads, Marine Structures; Soil Studies and Tests; Reports, design and supervision.

New York 17, N. Y. 420 Lexington Ave.

PARDO, PROCTOR, FREEMAN & MUESER
Ap. Corros 614 Caracas, Venezuela

Parsons, Brinckerhoff Hall & Macdonald

ENGINEERS

Bridges, Highways, Tunnels, Airports, Subways, Harbor Works, Dams, Canals, Traffic, Parking and Transportation Reports, Power, Industrial Buildings, Housing, Sewerage and Water Supply.

51 Broadway, New York 6, N. Y.

E. Lionel Pavlo

Consulting Engineer

Design, Supervision, Reports
Bridges, Highways, Expressways
Marine Structures, Public Works
Industrial Construction, Airports

7 E. 47th St. New York 17, N. Y.

Malcolm Pirnie Engineers

Civil & Sanitary Engineers

Malcolm Pirnie Ernest W. Whitlock
Robert D. Mitchell Carl A. Arenander
Malcolm Pirnie, Jr.

Investigations, Reports, Plans
Supervision of Construction
and Operations.

Appraisals and Rates
25 W. 43rd St., New York 36, N. Y.

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names

Additional cards on preceding pages

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names — Additional cards on preceding and following pages

The Pitometer Associates

Engineers

Water Waste Surveys
Trunk Main Surveys
Water Distribution Studies
Water Measurements & Special Hydraulic Investigations

New York, 50 Church St.

Alexander Potter Associates

Consulting Engineers

Water Works, Sewerage, Industrial Waste, Hydraulic Works, Reports, Designs, Appraisals.

50 Church St., New York, N. Y.

Clyde Potts Assoc.

Weston Gavett - Stanley N. Williams

Consulting Sanitary Engineers

Sewerage and Sewage Disposal
Water Works and Water Supply
Valuations and Appraisals

30 Church Street, New York 7

Sanderson & Porter

Engineers and Constructors

Reports and Surveys

New York, New York

Seelye Stevenson Value & Knecht *Consulting Engineers*

Richard E. Dougherty, Consultant

Airports, Highways, Bridges, Dams, Water Supply, Sanitation, Railroads, Piers, Industrial Plants, Reinforced Concrete, Steel, Industrial Waste Disposal, Foundations, Soil Studies, Real Estate Development
Civil — Mechanical — Electrical

101 Park Avenue New York 17, N. Y.

Scheidenhelm, F. W.

Consulting Engineer

Hydraulic Engineering; Hydro-electric Development; Water Supply; Flood Control; Engineering Problems relating to Water Rights and Water Power Law; Appraisals. 50 Church Street, New York 7, N. Y.

Severud-Elstad-Krueger

Consulting Engineers

Structural Design - Supervision
Reports - Buildings - Airports
Special Structures

415 Lexington Avenue
New York 17, N. Y.

Singstad & Baillie

Consulting Engineers

Ole Singstad David G. Baillie, Jr.

Tunnels, Subways, Highways
Foundations, Parking Garages

24 State St. New York 4, N. Y.

Frederick Snare Corporation

Engineers—Contractors

Harbor Works, Bridges, Power Plants, Dams, Docks and Terminals. Difficult and Unusual Foundations A Specialty.

233 Broadway, New York City 7

Havana, Cuba Lima, Peru
Bogota, Colombia, Caracas, Venezuela, San Juan, Puerto Rico, Guayoquil, Ecuador.

D. B. Steinman

Consulting Engineer

BRIDGES

Design, Construction
Strengthening, Investigations.
Reports, Advisory Service

117 Liberty St., New York 6, N. Y.

Yule, Sticklen, Jordan & McNee

ENGINEERS

(Formerly General Industries Engineering Company)
Bridges, Highways, Airports
Design, Investigations, Reports
Supervision of Construction
Civil, Structural, Mechanical & Electrical

309 South Broad St. 23rd & Market Sts.
Philadelphia 7, Pa. Camp Hill, Pa.

Keis & Holroyd

Consulting Engineers

Formerly Solomon & Keis
Since 1906
Water Supply, Sewage Disposal, Garbage & Refuse Incineration, Industrial buildings.

Troy, N. Y. Ft. Lauderdale, Fla.

Capitol Engineering Corporation

Engineers—Constructors—Management

Bridges Dams
Planning Airports
Sewage Systems Water Works
Design and Surveys Roads & Streets
Executive Offices, Dillsburg, Penna.

Gannett Fleming Corddry & Carpenter, Inc.

ENGINEERS

Dams, Water Works, Sewage, Industrial Wastes & Garbage Disposal, Highways, Bridges & Airports, Traffic & Parking — Appraisals, Investigations & Reports.

Harrisburg, Penna.

Branch Offices

Pittsburgh, Pa. Philadelphia, Pa.
Daytona Beach, Fla., Pleasantville, N. J.

Modjeski and Masters

Consulting Engineers

Design, Supervision, Reports, Inspection and Investigations, of Bridges, Structures, and Foundations.

State Street Bldg. 33rd and Arch Sts.
Harrisburg, Pa. Philadelphia 4, Pa.

Aero Service Corporation

Photogrammetric Engineers

Aerial Topographic Maps
Precise Photo Mosaics
Plastic Relief Models

236 E. Courtland St.
Philadelphia 20, Pa.

Albright & Friel Inc.

Consulting Engineers

Water, Sewage and Industrial Wastes Problems, Refuse Incinerators, Highways, Bridges and Airports, Dams, Flood Control, Industrial Buildings, City Planning, Reports, Appraisals and Rates, Laboratory.

121 So. Broad Street Phila. 7, Penna.

Day & Zimmermann, Inc.

Engineers

Designs, Construction, Valuations
Reports and Management
Public Utilities and Industrials

New York Philadelphia Chicago

Frederick H. Dechant

Consulting Engineers

Chairman of the Board
Frederic R. Harris Inc.
Water Works, Industrial Wastes, Sewerage, Recovery Processes, Hydraulic Works, Gas Plants.

Philadelphia: Fidelity Phila. Trust Bldg. New York: 27 William St.

Fridy-Gauker—Truscott & Fridy

Architects & Engineers

Water, Sewer, Waste Disposal, Roads, Airports, Power & Lighting, Petroleum Facilities, Hospitals, Schools, Public & Industrial Buildings. Reports, Plans, Supervision, Appraisals.

1321 Arch St. Philadelphia 7, Pa.

Justin & Courtney

Consulting Engineers

Joel B. Justin - Neville C. Courtney
Dams and Power Problems, Hydroelectric, River Basin Developments, Water Supply, Foundations

121 South Broad Street
Philadelphia 7, Pa.

Henry W. Taylor

Consulting Engineer

Water Supply, Sewerage
Refuse Disposal, Incineration
Industrial Developments

151 W. Merrick Rd., Freeport, N. Y.

The J. G. White Engineering Corporation

Design — Construction
Reports — Appraisals

80 Broad Street, New York

Hunting, Larsen & Dunnells, *Engineers*

Industrial Plants—Warehouses, Office and Commercial Buildings, Steel and Reinforced Concrete. Design and Supervision. Reports.

1150 Century Bldg., Pittsburgh, Pa.

Morris Knowles Inc.

Engineers

Water Supply and Purification Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.

Pittsburgh, Pa.

Peter F. Loftus Corporation

Design and Consulting Engineers

Electrical • Mechanical • Structural
Civil • Thermodynamic • Architectural

First National Bank Building
Pittsburgh 22, Pennsylvania

Gilbert Associates, Inc.

Engineers • Consultants • Constructors

607 Washington St., Reading, Pa.

Engineering • Construction Supervision
Sanitary • Power • Water • Sewerage
Industrial Relations • Rate-Research

New York • Philadelphia • Washington

Michael Baker, Jr., Inc.

Consulting Engineers, Civil Engineers, Planners & Surveyors; Airports & Highway Design; Water Works & Sewerage Design & Operation; Aerial Topo Maps; Surveys; Reports & Investigations; Irrigation. Home Off.—Rochester, Pa. Br. Off.: Jackson, Miss.; Harrisburg, Pa.; College Park, Md.

Weigle Engineering Co.

CIVIL ENGINEERS

William E. Weigle Donald K. Weigle
Sewers, Bridges, Municipal Work
Design and Construction Supervision
Estimates and Flood Control

30 N. Duke St., York, Pa.

SOUTH

Ewin Engineering Corporation

Designers of Port Facilities, Foundations, Industrial Plants, Bridges, Highways, Sewage Disposal and Municipal Projects.

P O Box 361, Mobile, Alabama
Tallahassee, Fla. Washington, D. C.

Polk, Powell and Hendon

Consulting and Designing Engineers

Municipal and Industrial Works, Investigations and Reports
621 Stallings Building,
Birmingham 3, Alabama

Palmer and Baker, Inc.

Consulting Engineers - Architects

Surveys-Reports-Design-Supervision Consultation

Transportation and Traffic Problems
Tunnels-Bridges-Highways-Airports
Industrial Buildings
Waterfront and Harbor Structures
Graving and Floating Dry Docks
Complete Soils, Materials and Chemical Laboratories

Mobile, Ala. New Orleans, La.
Harvey, La.

Duval Engineering & Contracting Co.

General Contractors

FOUNDATION BORINGS
For Engineers and Architects.

Jacksonville, Florida

James and Baxter Associates, Inc.

Architects & Engineers

A complete professional service
Architectural, Civil, Industrial, Municipal

2962-64 Coral Way Miami 34, Fla.

Rader Engineering Co.

Water Works, Sewers, Refuse Disposal, Ports, Harbors, Flood Control, Bridges, Tunnels, Highways, Airports, Traffic, Foundations, Buildings, Reports, Investigations, Consultations.

111 N.E. 2nd Ave., Miami 32, Florida

Law-Barrow-Agee Laboratories, Inc.

Soils Engineers & Consultants

Soil Testing—Soil Boring—Rock Drilling—Load Testing—Field Control —Engineering Studies—Chemical Analysis—Physical Testing

Box 1559 Atlanta 1, Ga.
Serving the entire South

John J. Harte Co.

Engineers • Architects

Water • Sewer • Gas • Highways
Airports • Chemical Process • Industrial
Power • Aerial & Ground Surveys

284 Techwood Dr., Atlanta, Ga.
New York • Washington • Foreign

Patchen and Zimmerman Engineers

Bridges, Expressways, Dams, Hydro and Steam Power, Chemical, Process and Industrial Plants, Water Supply and Sewage Treatment, Investigations, Reports, Design, Supervision.

Augusta, Georgia Atlanta, Georgia

Eustis Engineering Company

FOUNDATION AND SOIL
MECHANICS INVESTIGATIONS

Soil Borings *Laboratory Tests*
Foundation Analyses *Reports*

3635 Airline Highway
New Orleans 20, La.

Paulson Engineering Services, Inc.

Consulting Engineers

Marine Engineering, Dredge Design, Dredging Job Estimates, Land Reclamation Development.

P. O. Box 241 Charleston, S. C.

Schmidt Engineering Co.

Consulting Engineers

Investigations, Reports, Designs, Supervision Heavy Construction—Dams and Hydroelectric Projects—Foundation Explorations and Treatment—Water and Sewerage Works—Bridges & Highways

817 Broad St. Chattanooga 2, Tenn.

MIDDLE WEST

Alvord, Burdick & Howson

CONSULTING ENGINEERS

Water Works	Sewerage
Water Purification	Sewage Treatment
Flood Relief	Power Generation
Drainage	Appraisals

20 North Wacker Drive, Chicago

Consult these Specialists:
Let them save your time by bringing their broad experience in their specialty to bear on your problems.

ADVERTISERS IN THIS ISSUE

Allis-Chalmers Mfg. Co. (Pumps)..... 30, 31
Horn Co., Inc. A. C., Div. of
Owens Corning Fiberglas Corp..... 63
Ozalid Products Div., General Aniline & Film Corp..... 55
Philco Corp. 6, 7

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names

Additional cards on preceding pages

A. J. Boynton & Co.

ENGINEERS

Fixed and Movable Bridges
Structures
Foundations

Design
Construction

109 N. Wabash Ave., Chicago 2.

Ralph H. Burke, Inc.

CONSULTING ENGINEERS

Complete Architectural
and Engineering Services
Plans, Supervision, and Reports

Expressways - Grade Separations
Traffic Studies - Parking Structures
Underground Garages - Shore Protection
Parks - Field Houses - Municipal Works
Airports and Air Terminal Buildings
20 North Wacker Drive, Chicago 6, Ill.

Consoer, Townsend & Associates

Water Supply, Sewerage, Flood Control
Drainage, Bridges, Express Highways,
Paving, Power Plants, Appraisals,
Reports, Traffic Studies, Airports,
Gas & Electric Transmission Lines.
351 East Ohio St., Chicago 11, Illinois

De Leuw, Cather & Company

CONSULTING ENGINEERS

Transportation, Public Transit and
Traffic Problems

Industrial Plants — Grade Separations
Railroads — Expressways
Subways — Tunnels
Power Plants — Municipal Works

150 North Wacker Drive
Chicago 6, Ill.

79 McAllister Street
San Francisco 2, Calif.

Greeley and Hansen

Engineers

Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse
Disposal

220 S. State Street, Chicago 4

Harza Engineering Co.

Consulting Engineers

Calvin V. Davis — E. Montford Fucik
Richard D. Harza

Hydroelectric Plants and Dams
Transmission Lines
Flood Control, Irrigation
River Basin Development
400 West Madison Street — Chicago 6

Hazelet & Erdal

CONSULTING ENGINEERS

Fixed Bridges, Movable Bridges, Industrial Plants, Expressways, Airports, Dams
Monadnock Block, Chicago 4, Ill.
Dixie Terminal Bldg., Cincinnati 2, O.
Commerce Bldg., Louisville 2, Ky.

Pioneer Service & Engineering Co.

Consulting and Design Engineers
Operations - - - Purchasing
Steam - - Hydraulic - - Gas
Public Utilities - - Industrials

231 So. La Salle St. — Chicago 4

Sargent & Lundy

ENGINEERS

Steam and Electric Plants
Utilities—Industrials
Studies—Reports—Design
Supervision
Chicago

Chas. W. Cole & Son

Engineers - Architects

Sewerage, Water Supply, Bridges, Highways, Toll Roads, Industrial, Municipal and Commercial Buildings

220 W. LaSalle Ave., Central 4-0127
South Bend, Indiana

Testing Service Corporation

Testing Engineers-Engineering Geologists

Foundation Investigations—Laboratory analyses and Evaluation of Construction Materials—Soil Mechanics, Concrete and Asphalt Technology, Field Inspection and Consultation. Special Investigations for Dams, Turnpikes, Airports.
710 N. Brookfield, South Bend 38, Ind.

The H. C. Nutting Co.

Engineers — *Chemists*

Investigations - Reports
Inspection - Testing
Soils - Foundations - Building Materials
Water — Sewage

4120 Airport Rd. Cincinnati 26, O.
2145 N. W. 2nd Ave. Miami 37, Fla.

The Austin Company

Design and Construction

Manufacturing and Process Plants
Airports & Air Transport Buildings
Railroad Terminals and Facilities
Power Plants — Industrial & Institutional
Industrial Office Buildings and Laboratories
Reports and Plant Location Surveys

New York — CLEVELAND — Los Angeles
Chicago — Houston — Oakland
Detroit — Seattle

Havens and Emerson

W. L. Havens — C. A. Emerson
A. A. Burger — F. C. Tulles — F. W. Jones
H. H. Moseley — J. W. Avery
E. S. Ordway — F. S. Palocsay

Consulting Engineers

Water, Sewerage, Garbage, Industrial Wastes, Valuations — Laboratories

Leader Bldg. — Woolworth Bldg.
Cleveland 14 — New York 7

The Osborn Engineering Co.

DESIGNING-CONSULTING

Industrial Plants — Office Buildings
Stadiums — Grand Stands — Field Houses
Bridges — Garages — Laboratories

7016 Euclid Ave. — Cleveland 3, Ohio

Jones, Henry & Williams

Consulting Sanitary Engineers

Water Works, Sewerage & Treatment
Waste Disposal

Security Building — Toledo 4, Ohio

Toledo Testing Laboratory

Engineers—Chemists

Concrete — Soils — Asphalt
Inspection — Research
Tests — Development
Foundation Investigation
Borings — Diamond Drilling — Load Tests
Soils Mechanics Laboratory

1810 North 12th St. — Toledo 2, Ohio

WEST OF MISSISSIPPI

Heron Engineering Co.

Consulting Engineers

For all types of Aerial Tramways, Cableways, and Suspended Structures

2000 South Acoma St.
Denver 10, Colorado

Stanley Engineering Company

Consulting Engineers

327 S. LaSalle Street — Hershey Building
Chicago 4, Illinois — Muscatine, Iowa

Black & Veatch

Consulting Engineers

Water - Sewage - Electricity - Industry
Reports, Design, Supervision of Construction, Investigations, Valuation and Rates.

4706 Broadway, Kansas City 2, Mo.

Burns & McDonnell

Consulting and Designing Engineers

P. O. Box 7088, Kansas City 2, Mo.
1404 E. 9th St., Cleveland 14, Ohio

Harrington & Cortelyou

Consulting Engineers

Frank M. Cortelyou
E. M. Newman — F. M. Cortelyou, Jr.

Movable and Fixed Bridges of All Types, Foundations, and Related Structures.
1004 Baltimore — Kansas City 6, Mo.

Russell and Axon

Consulting Engineers

Civil — Sanitary — Structural
Industrial — Electrical
Rate Investigations

408 Olive St. — St. Louis 2, Mo.
Municipal Airport, Daytona Beach, Fla.

Sverdrup & Parcel, Inc.

Consulting Engineers

Bridges, Structures and Reports, Industrial and Power Plant Engineering.
Syndicate Trust Bldg., St. Louis 1, Mo.
220 Bush St., San Francisco 4, Calif.

Benham Engineering Co.

Established in 1909

Design and Construction Engineering Services for Water and Sewage—Highways and Structures—Airports—Power and Heating Plants
215 N E 23rd Street
Oklahoma City 5, Oklahoma

Pipe Line Anode Corporation

Survey—Engineering Design—Installation and Maintenance of Cathodic Protection Systems.

Box 471 — Tulsa, Oklahoma

Huston Engineering

Engineers and Consultants

Civil
Electrical

Corpus Christi, Texas — P. O. Box 1437

Lockwood & Andrews

Consulting Engineers

Airports, Paving, Industrial Plants, Drainage & Sewerage, Site Locations, Soils & Foundations, Water Supply, Structures, Harbor Works, Valuations, Reports — Design — Supervision
Union Nat'l Bank Bldg. Houston, Tex.

FAR WEST

International Engineering Company, Inc.

ENGINEERS

Investigations - Reports - Design
Procurement - Field Engineering
Domestic and Foreign

74 New Montgomery St.
San Francisco 5, California

FOREIGN

The Foundation Engineering Company of Puerto Rico

Consulting Engineers

Foundation and Soil Mechanics Investigations, Laboratory analyses, reports and recommendations, design of structures, Supervision.
P. O. Box 821, San Juan, Puerto Rico

DREDGING

Frank Hefling

Air Lift Suction Dredging Cuts Costs.

Cofferdams, Aerate sewage movements Dredges solids pipe size. No priming. No loading. No pump impellers, Ck. valves, cutter heads. Efficient in deep water, digs under waters, highly mobile.
P. O. Box 60 Chicago 90; Ph. ES-5-7010

INSPECTION & TEST

Robert W. Hunt Company

Inspection and Testing of Engineering Materials & Equipment

New York • Chicago • San Francisco
and other Principal Cities

Johnson Soils Engineering Laboratory

Foundation Design - Highway & Airport Pavements - Construction Control - Load Tests - Shear & Consolidation Tests - MOBILE LABORATORIES
103 West Shore Ave., Bogota, N. J.
Bogota-Hubbard 7-4408

Engineering Testing Laboratory, Inc.

Foundation and Soil Mechanics Investigations

Soil Borings — Laboratory Tests
Foundation Analyses — Reports
3313 Main St. — Houston, Texas

The Consulting Engineer

By reason of special training, wide experience and tested ability, coupled with professional integrity, the consulting engineer brings to his client detached engineering and economic advice that rises above local limitations and encompasses the availability of all modern developments in the fields where he practices as an expert.

CHECK this section whenever you need professional advice.

ADVERTISERS IN THIS ISSUE

Allis-Chalmers Mfg. Co. (Pumps).....30, 31
American Bitumuls & Asphalt Co..... 100
American Steel & Wire Div., U. S. Steel Corp.....114, 115
American Steel Dredge Co., Inc..... 111
American Surety Co..... 76
Armco Drainage & Metal Products, Inc.. 33
Atlantic Steel Corp..... 86

Baker Roos, Inc..... 36
Barber-Greene Co..... 70
Bemis Bros. Bag Co..... 131
Bethlehem Steel Co..... 1
Borden Metal Products..... 20
Briggs Publishing Co..... 69
Broderick & Bascom Rope Co.....4th Cover
Bruning Co., Inc., Charles.....14, 15
Buchanan Lumber Co..... 103
Buck Equipment Corp..... 92
Bucyrus-Erie Co..... 88
Butler Bin Co..... 52

Canadian International Trade Fair..... 73
Cement Gun Co..... 84
Chicago Pneumatic Tool Co..... 83
Clark Equip. Co., Const. Mchy. Div..... 55
Concrete Grinding Corp..... 104
Concrete Reinforcing Steel Inst..... 71
Concrete Surfacing Machinery Co..... 116
Construction Machinery Co..... 102

Dodge Div., Chrysler Corp..... 97
Dravo Corp..... 37

Eagle Iron Works..... 72
Eimco Corp., The.....59, 60
Erie Strayer Co..... 93

Faber-Castell Pencil Co., A. W..... 40
Foote Const. Equip. Div., Blaw-Knox Co.....10, 11
Ford Motor Co..... 91
Frederick Iron & Steel Corp..... 84

Gar Wood Industries, Inc.....42, 43
Garbro Mfg. Co..... 103
General Electric Co. Electronics Dept.... 77
General Electric Co., Silicone Div..... 61
Golden Anderson Valve Co..... 28
Goodrich Co., The B. F..... 3
Gorman Rupp Co..... 8
Granco Steel Products Co.....74, 75
Griffin Wellpoint Corp..... 116
Gunite Concrete & Const. Co..... 92
Gunite Const. Corp..... 99

Hamilton Kent Mfg. Co..... 5
Hamilton Mfg. Co..... 29
Hamilton Rubber Mfg. Corp..... 111
Harnischfeger Corp..... 87
Hendrick Mfg. Co..... 94
Hendrix Mfg. Co..... 41
Hetherington & Berner, Inc..... 98

Horn Co., Inc., A. C., Div. of Sun Chemical Corp..... 49
Hose-McCann Telephone Co., Inc..... 86

International Harvester Co.....106, 107
Irvington Form & Tank Corp.....3rd Cover

Kerrigan Iron Wks Inc..... 62
Kinnear Mfg. Co..... 109

Layne & Bowler Pump Co..... 101
Lee & Son, W. W..... 69
Lock Joint Pipe Co..... 16
Longyear Co..... 103

Mack Trucks, Inc..... 68
Macomber, Inc..... 79
Manitowoc Engineering Works..... 50
Maxon Const. Co., Dumpcrete Div..... 105
Mayo Tunnel & Mine Eqpt. Co..... 76
McKiernan-Terry Corp..... 92
Midwestern Industries Inc..... 95
Minnesota Mining & Mfg. Co.....66, 67
Moretrench Corp..... 109
Morrison Steel Prod. Inc..... 90
Muller Machinery Co..... 89

Nat'l Steel Corp., Stran Steel Div..... 9
Naylor Pipe Co..... 38

Oliver Corp.....2nd Cover

Owens Corning Fiberglas Corp..... 63
Ozalid Products Div., General Aniline & Film Corp..... 85

Philco Corp.....6, 7
Pittsburgh Coke & Chemical Co..... 65
Plasteel Products Corp..... 46
Pressure Concrete Co..... 96

Robertson Co., H. H.....80, 81
Roebling's Sons Corp., John A..... 13

Sauerman Bros., Inc..... 89
Schramm, Inc..... 12
Servicised Products Corp..... 70
Smith Engineering Works..... 18
Sprague & Henwood, Inc..... 96
Standard Steel Spring Div., Rockwell Spring & Axle Co..... 115
Stow Mfg. Co..... 32
Superior-Lidgerwood-Mundy Corp..... 72

Union Metal Mfg. Co..... 4
U. S. Rubber Co.....56, 57

Vibroflotation Foundation Co..... 115

Warren Knight Co..... 99
Waukesha Motor Co..... 78
White Co., David..... 64
Wickwire Spencer Steel Div., Colorado Fuel & Iron Corp..... 108
Wild Heerbrugg Instruments, Inc..... 2
Willys Motors Inc.....94, 95
Wisconsin Motors Corp..... 99
Wood Co., R. D..... 96

ENGINEERING NEWS-RECORD

330 West 42 St., New York 36—LOngacre 4-3000

ABP Member

Number of copies of this issue printed 66,874

D. S. Robertson, Advertising Manager
Howard T. Olsen, Business Manager

ADVERTISING REPRESENTATIVES

New York, 36—300 W. 42 St.,
M. J. Storz, C. D. Neulen
S. Kennedy

Chicago, 11—520 No. Michigan Ave.,
L. H. Hunt, W. G. Payne

San Francisco, 4—68 Post St.,
R. C. Alcorn

Philadelphia, 3—17th and Sansome Sts.,
A. B. Cozzens, D. G. Jensen

Cleveland, 15—Hanna Bldg.,
E. E. Duff, Jr., F. P. DiToro

Detroit, 26—Penobscot Bldg.,
J. A. Houghton

St. Louis, 8—Continental Bldg.,
B. F. Horn

Los Angeles, 17—1111 Wilshire Blvd.,
H. L. Keeler

Atlanta, 3—Rhodes-Haverty Bldg.,
W. D. Lanier

Dallas, 1—First National Bank Bldg.,
J. H. Cash

OTHER SALES OFFICES:
Pittsburgh, 22—738-39 Oliver Bldg.,
Boston, 16—350 Park Square Bldg.,
London, McGraw-Hill House

You can't find harder-working, more economical tarps than

Bemis Dri-Tite® Tarpaulins

Dri-Tite treatment doesn't crack in cold weather or run in hot weather.

Dri-Tite treatment penetrates every fiber ... isn't just a surface coating.

Dri-Tite tarps have wide, double hems and square, reinforced corners ... for strength and long service.

Brass rolled-rim spur grommets, made of *heavy* gauge metal, are *anchored* in reinforcing patches sewn on selvage sides.

Write for prices and detailed information.

Bemis

407 Poplar Street, St. Louis 2, Missouri

EDITORIALS

Better Roads or Else

IF CONGRESSIONAL ACTION AND ATTITUDE, as demonstrated so far on road legislation, meets with the approval of the people at large, one would be justified in fearing for the future of our vaunted growing economy. For there is probably no single factor that can slow the economy more quickly and effectively, and perhaps turn it about, than continued inadequacy in the facilities for highway transport.

Consider what Congress has done thus far. First, it has sidetracked the President's "grand plan for highways", concentrating its objections on the bond financing proposal even though this would admittedly provide the roads that we need when we need them. Second, as the only alternative it has introduced substitute measures that neither come to grips with the real road problem nor offer much improvement over the inadequacies of the existing road program. In most of this, Congress has exhibited a lackadaisical attitude—and in some cases a political obstructionism—that is alarmingly out of keeping with the emergency nature of the road problem.

One need not go so far as to accept the President's bond financing proposal as the only method that will assure us adequate roads, to raise some doubts with respect to the arguments that have been advanced against it. For example, it has been said that issuing bonds, which would be secured by a pledging of federal gas tax revenues and thus would not be reflected in the national debt, constitutes "financial legerdemain." Yet this same method of financing with revenue bonds is widely used by cities and states where it is in nowise considered "unorthodox" or "deceitful."

It has also been argued that the use of bond financing would shift the cost of our roads to our children. Beyond the fact that the alternative is to leave the problem—in a much worse form than it is today—for our children to solve, the argument does not hold up because we would be paying for the roads as we use them. And having the good roads now would generate such increased revenue as to amortize a large part of the cost before our children are old enough to be taxpayers.

This same promised increase in revenue also offsets the other argument that the interest cost of the bonds raises the cost of the roads unreasonably. If such an argument were admissable, bond financing for any purpose should never be used. Actually going into debt for a facility that will pay its own way—and having the facility instead of just wishing for it—is a method of financing that has repeatedly demonstrated its soundness.

If the real objection is that road appropriations under the bond plan would be removed from the control of Congress, then efforts should be directed toward remedying this situation and not expended on specious arguments against the "unorthodox" character of bond financing.

There is, of course, a way to finance the roads we need without resort to bonds. That is to raise gas taxes a sufficient amount to pay for an adequate road-building program year by year. But that can only be done if the gas tax money is completely reserved for the use of roads, and the determination to do that is unfortunately lacking. That is one of the things that makes the substitute bills now before Congress unrealistic. They call for greatly increased expenditures by the states, without detailing how the states are to raise the money.

The fact of the matter is that if there is a real desire for adequate roads, they can be assured either by bond financing or by increased taxes. Congress so far has tended to create the impression that the nation can't afford adequate roads. If Congress faced up to reality, it would adopt the attitude that we can't afford to forego the roads that we need on the ground that the growth of the whole economy is otherwise in jeopardy. That is the attitude that should exist with respect to the road program, rather than one of fear and doubt as to our ability to finance a big road program.

For an investment that is as sound as modern highways and for a nation as wealthy as the United States, financing of an adequate road program should be taken in stride. The alternative is a drag on economic expansion that could well prove fatal to the prosperity and rising standards of living that have become our national objective.

Progress From Mistakes

A YEAR AGO, unit 1 of Ontario Hydro's Richard L. Hearn Generating Station in Toronto failed with explosive force under light load after an overnight shutdown. And it was but four days later that unit 2 in the same plant failed, almost identically. The parts that failed were austenitic steel end-bells which retain rotor windings. Now, a report authored by Sir Claude Gibb on failure of the two 100,000-kw generators is published in the March issue of The Engineering Journal of Canada.

Failures were traced to ventilation holes in the end-bells. Metal around the holes was not ductile enough to spread stresses concentrated there. Future units will not have the undesirable end-bell holes; they will be hydrogen cooled and thus not require ventilation.

This report is significant in itself, but its significance is enhanced by recent turbogenerator failures in the U. S. It is hoped that the cause of these failures will be as definitely explained as those in Canada, for only with such information from their past mistakes can engineers and metallurgists progress.

CONCRETE IGLOO FORMS

FOR RENT OR SALE

COMPARISON TABLE OF IGLOO SIZES

FORM NO.	LENGTH	INSIDE RADIUS	INSIDE HEIGHT	FRONT WALL			VENTILATOR
				LENGTH	HEIGHT	NO. OF BUTTRESSES	
1	81′ 0″	13′ 5″	12′ 9″ or 13′ 9″	50′ or 62′ 10″	16′ 1½″ or 16′ 8″	2 or 4	18″ x 18″
2	60′ 8″	13′ 5″	12′ 9″ or 13′ 9″	50′ or 62′ 10″	16′ 1½″ or 16′ 8″	2 or 4	18″ x 18″
3	52′ 2″	13′ 5″	12′ 9″ or 13′ 9″	50′ or 62′ 10″	16′ 1½″ or 16′ 8″	2 or 4	18″ x 18″
4	41′ 6″	13′ 5″	12′ 9″ or 13′ 9″	50′ or 62′ 10″	16′ 1½″ or 16′ 8″	2 or 4	18″ x 18″

(Other Sizes Also Supplied)

IGLOOS

Accurately-built forms for mechanical or manual operation (depending upon re-uses).

Our form design permits fast and easy erection and stripping, reducing labor costs to a minimum.

Whether your job consists of several or a hundred igloos, we can save you time and money. Forms are available on a rental or outright purchase basis.

MISSILE STORAGE STRUCTURES

Our lightweight forms for manual handling have a minimum number of working parts—are designed for fast erection and stripping. You save on labor, material and finishing.

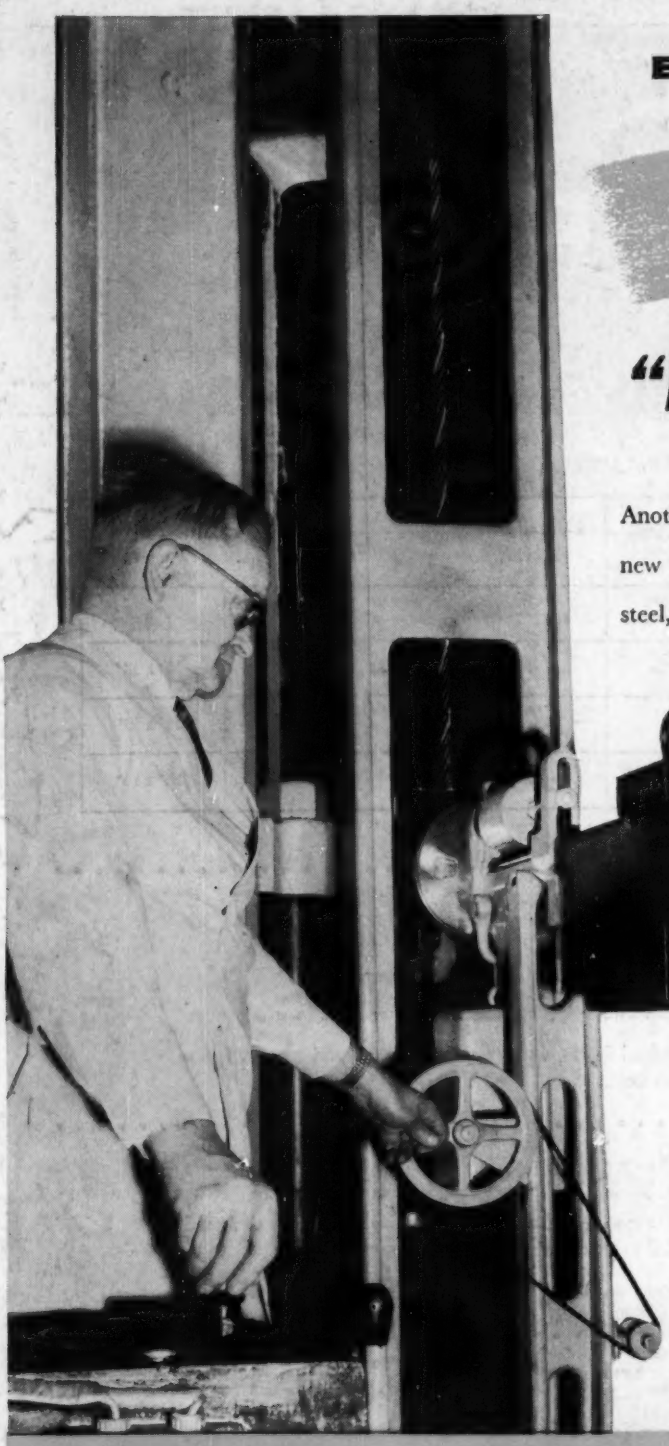
Forms, engineering and field erection supervision are included in all rental and purchase contracts.

CONCRETE FORMS FOR HEAVY OR LIGHT CONSTRUCTION

Whatever your job may be, we can supply a specific form incorporating modern devices for erecting, stripping and moving. All our forms are rigidly constructed for repeated uses and fast pouring schedules.

IRVINGTON FORM & TANK CORPORATION

DEPARTMENT HC, 20 VESEY STREET, NEW YORK 7, N. Y.



BRODERICK & BASCOM ANNOUNCES

NEW

YELLOW STRAND "POWERSTEEL" WIRE ROPE

Another addition to the famous Yellow Strand family — the new "POWERSTEEL!" Made of higher carbon content steel, new "POWERSTEEL" is 15% stronger, assures longer life. It withstands shock, resists wear. Preformed, with Independent Wire Rope Core, "POWERSTEEL" is a heavy-duty, crush-resistant rope, designed for long service.

STRONGER LONGER LIFE!

Yellow Strand "POWERSTEEL" was proved in military service in World War II. Its long life has been established on rugged logging operations. Broderick & Bascom is now presenting this higher quality rope to industry. Check on Yellow Strand "POWERSTEEL" for your tough jobs — where extra strength is needed. See your Broderick & Bascom distributor, or write the branch nearest you for information.

Yellow Strand®

BRODERICK & BASCOM ROPE CO.
4203 UNION BLVD. - ST. LOUIS 15, MO.

Manufacturers of Wire Rope for 79 Years

605 EDMUNDS ST. SEATTLE 8, WASH.	35-30 43rd AVE. LONG ISLAND CITY 1, N.Y.	1510 N.W. MARSHALL ST. PORTLAND 9, ORE.	1330 W. FULTON ST. CHICAGO 7, ILL.
44 POTRERO AVE. SAN FRANCISCO 3, CALIF.	9441 HUNTER ST. LOS ANGELES 21, CALIF.	117 JEFFERSON HIGHWAY NEW ORLEANS, LA.	9350 MARKET ST. ROAD HOUSTON 15, TEXAS